

MAY 1959

Established in 1945 as FLOW Magazine

Material Handling Engineering



**Celebrates
10th Anniversary
page 27**



**Material Handling
Equipment—Then and Now
page 32**

**News About
page 70**



**MH Experts
In Tech Sessions
page 75**



Industrial
Trucks of
The Future

This is the publication of the material handling industry, prepared by identified buyers of material handling equipment and shipping equipment and supplies.

NØELTING

Faultless L900 Casters

DOUBLE BALL BEARING SWIVEL
MEDIUM DUTY

**CUT YOUR
HANDLING COSTS
3 WAYS**



PROTECTS FRAGILE LOAD
Cushion tread and Semi-Pneumatic wheels give extra protection to loads and floors. Other types of wheels available.

NØELTING
Faultless
Casters

**SURPLUS STRENGTH SAFELY
HANDLES MAX. RATED LOADS**

**GREATER
MANEUVERABILITY**
Two full rows of ball bearings in swivel head assure easier handling, in confined areas.

SUPERIOR DESIGN FEATURES

- 1 **CORRUGATED TOP PLATE** . . . fully hardened to give added strength. Slotted mounting hole spacing permits easy attachment to new equipment. Fits holes drilled from centers of $2\frac{1}{2}$ " x $3\frac{3}{8}$ " to 3" x 3" when used as replacement casters.
- 2 **MAIN LOAD BEARING** . . . consists of 21 hardened, polished balls ($\frac{3}{4}$ " dia.) rolling in large dia. hardened, lubricated raceway permanently attached to caster horn to assure perfect alignment.
- 3 **LOWER THRUST BEARING** . . . contains 10 hardened steel balls ($\frac{3}{4}$ " dia.). Hardened raceway is machined from bar stock. Ball retainer is hardened formed steel.
- 4 **EXTRA-LARGE DIAMETER KINGPIN** . . . assures bonus strength in this caster, and strong, trouble-free construction.
- 5 **CLOSE FITTING, FORMED STEEL CUP** . . . protects thrust bearing from dirt, water and other foreign matter. Holds lubricants in bearings, keeps floor clean.
- 6 **HEAVY GAUGE, FORMED STEEL HORN** . . . easily absorbs highest rated loads and thrust. Correct offset permits easy swiveling and shimmy-free running.
- 7 **FULL SELECTION OF WHEELS** . . . for all types of floors and operating conditions. Bolt and nut axles permit quick wheel replacement when needed.

SERIES L9700 RIGID PLATE CASTER

Wheel types and sizes, load capacities and overall heights to match L900 Swivel Plate Caster.

ASK YOUR DISTRIBUTOR!

Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. He and one of the strategically located Faultless Sales Engineers are available to work with you on every handling problem in your plant. Both are listed in phone book Yellow Pages, under "Casters," beneath the Faultless heading.



FREE! SEND FOR
ILLUSTRATED
LITERATURE



Faultless Caster Corporation

Evansville 7, Indiana

Send me Free L900 Medium Duty Caster information.

Name

Firm

Address

City State

Circle 56 on Reader Service Card for more information



NEW VIEW ON TIRE VALUE

Photographed through glass, this rugged Lug Industrial Tire by Goodyear tells quite a story.

Instantly, you see why this tire gives superior traction on slick, slippery surfaces. Goodyear's famous Lug tread design provides that extra *grip-ping* power—makes this tire ideal for use wherever sure-footed traction is required.

And since this is a *pneumatic* tire, it has the side-wall flexibility, smoothness and flotation that assure safe haulage of cargoes which *must* be handled with care.

There's terrific strength and stamina in this tire,

too—provided by Goodyear's 3-T Cord that's triple-tempered in an exclusive process, involving Tension, Temperature and Time, for longer tire life, lower cost in the long run.

GET ALL THE FACTS on the Lug Industrial and the complete line of Goodyear Pneumatic and Solid Industrial Tires from your Goodyear Dealer. Or write:

Goodyear, Industrial Tire Sales, Akron 16, Ohio.



INDUSTRIAL TIRES BY

GOODYEAR

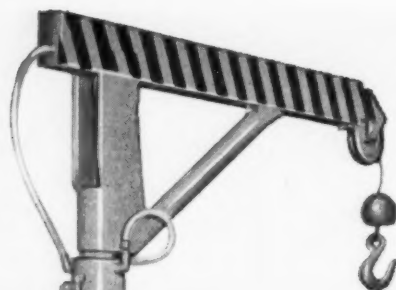
MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

Circle 64 on Reader Service Card for more information

MAY, 1959

there are 101 ways
to cut handling
costs with the new

DROTT "GO-DEVIL"



If you're looking for cost-cutting ideas in materials handling, put your imagination to work on the possibilities offered by the new Drott "Go-Devil". You name it — it does it.



IT LIFTS — Hydraulically controlled boom raises or lowers with fingertip control, from horizontal to 75°. Cable can be controlled simultaneously.

Here are just a few of the 101 time-saving applications for the "Go-Devil".



SPECIFICATIONS

MODEL	CAPACITY	FULL EXTENSION	BOOM	
			LIFT	ROTATION
20 RM2	2000 LBS.	8' 6"	HORIZ. TO 75°	360° CONTINUOUS
50 RM2	5000 LBS.	18' 0"	HORIZ. TO 75°	360° CONTINUOUS

Sold through Materials Handling Equipment Dealers — some territories available.

DROTT
MANUFACTURING CORP.

Materials Handling Division
3126 South 27th Street
Milwaukee 15, Wisconsin

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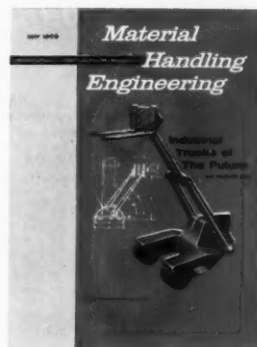
IT REACHES — Boom hydraulically extends and retracts — extension control can be simultaneous with other actions of the boom.

IT HAULS — Large, sturdy platform makes it a hard-working mobile truck. Stakes and side platform area permit hauling pipe and other long objects.

IT SWINGS — Full, continuous rotating boom swings at safe maximum speed of 3 R.P.M.

IT MANEUVERS — Touch control of forward and reverse provide complete maneuverability for cramped quarters, plenty of speed for yard areas.





COVER: The fork lift truck of the future might look like the sketches on the cover (blueprint from R. A. Vance of Elwell-Parker, air brush drawing from B. I. Ulinski of Automatic). Or it might resemble those described on pages 72-74. The men who discuss them are research and design experts for some of the leading truck manufacturers. Their predictions promise an exciting future for industrial trucks.

FEATURES

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How this organization has helped material handling over the years.
- 32 **MATERIAL HANDLING EQUIPMENT—THEN AND NOW**
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Manufacturers look into the crystal ball and predict tomorrow's designs.
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- 79 **CRANE COMMUTES TO THE JOB**
Material handling equipment makes quarrying a modernized operation.
- 80 **CLOSE-TO-STORAGE SHIPPING**
Overhead cranes do a complete warehousing job—receiving, storing, shipping.

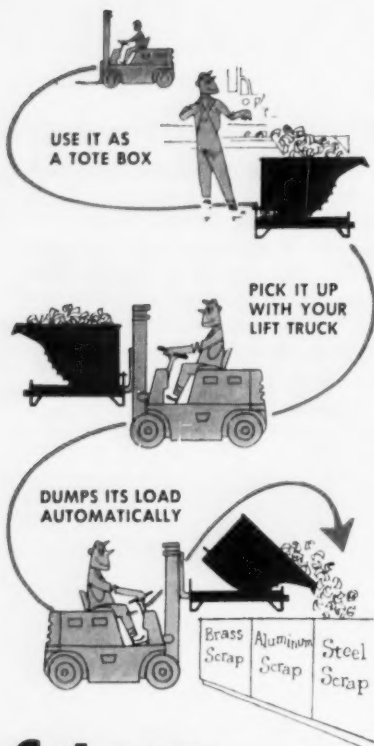
PACKAGING SHIPPING

- 90 **CUSHIONING FOR THOSE PROBLEM JOBS**
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Packaging and Shipping Idea of the Month.



reader's guide continues on next page

Accepted as Controlled Circulation publication at Philadelphia, Pa. Printed in U.S.A.
Postmaster: Send form 3579 to Room 800, 812 Huron Road, Cleveland 15, Ohio.



Cut your scrap-handling costs 50%

Handling scrap metal is a simple, one-man operation when you use Roura Self-Dumping Hoppers. Place them in strategic spots for scrap collection. One man with a lift truck carries them to scrap bins or freight car . . . flips the latch and the hopper automatically dumps its load, rights itself, locks itself, and it is ready for another load. Hoppers may be labelled for different kinds of scrap for easy, profitable scrap segregation. No wonder they're cutting costs in hundreds of plants.

Forks or platform of any standard lift truck slip easily into under-frame of a Roura Hopper. Pick-up is swift and simple. Hoppers are made in five sizes, $\frac{1}{2}$ to 2 yard capacity, and mounted on live or semi-live skids with choice of wheels.

They're made of $\frac{3}{16}$ " steel plate with continuous arc-welded seams. Good for years of toughest service. Standard models shipped from stock immediately. Also available in stainless steel and galvanized. Start now cutting costs with Roura.

ROURA Self-Dumping HOPPER

WANT DETAILS?

Clip this coupon . . . attach it to your letter-head . . . sign your name . . . and mail to . . .

ROURA IRON WORKS, INC.
1411 Woodland Ave., Detroit 11, Mich.

Circle 123 on Reader Service Card

Material Handling Engineering

volume 14 number 8

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published monthly by
THE INDUSTRIAL PUBLISHING CORPORATION
812 Huron Road, Cleveland 15, Ohio

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United States and possessions: \$7 one year, \$12 two years. United Kingdom: £35.0 one year, payable in sterling to our London office. Canada: \$8 one year. Other foreign: \$10 one year. Single copies (when available): one to 10, 75c each; 11 to 25, 60c each; more than 25, 45c each. Canada: 75c each. Foreign: \$1 each.

MATERIAL HANDLING ENGINEERING is indexed by Engineering Index, Inc. Affiliated publications: APPLIED HYDRAULICS & PNEUMATICS, INDUSTRY & WELDING, MODERN OFFICE PROCEDURES, OCCUPATIONAL HAZARDS, THE REFRIGERATION & AIR-CONDITIONING BUSINESS, WELDING ILLUSTRATED and MATERIAL HANDLING ILLUSTRATED, POWER TRANSMISSION DESIGN.

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NEXT MONTH IN MHE

we'll honor the 1959 Material Handling Institute Exposition. Our editors have taken the theme of the Exposition's Technical Sessions—Management, Engineering, Applications—and have applied it to the Big Three of the automotive industry. You'll get the big handling story at General Motors, Ford, and Chrysler.



NEW from HYSTER

monotrol

Sets a new standard for lift truck safety and performance



Monotrol is Hyster's exclusive new lift truck control system "human engineered" to eliminate unnecessary and unnatural driver motions. Result—more work done per day with greater safety.

- Forward-reverse and speed are *right* foot controlled by single Monotrol pedal. No hand shift lever.
- Left hand is free for full time steering; right hand for load control.
- Push buttons control automatic parking brake.
- Left foot controls inching brake.


Ask your Hyster Dealer to demonstrate the all new Hyster SPACESAVER 30-40-50 Lift Trucks with Monotrol control system. Write for Bulletin 1679, HYSTER COMPANY, P. O. Box 847, Danville, Ill.



➔ **MOVING AHEAD WITH INDUSTRY**

Factories: Danville, Ill. • Portland, Ore. • Peoria, Ill. • Kewanee, Ill. • Glasgow Scotland • Nijmegen, The Netherlands • Sao Paulo, Brazil • Sydney, Australia (licensee)

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The
drive is
in the
drum!

BAUER
Self-driven
HEAD PULLEY

Motor, gears, all moving parts integrally designed in a compact, efficient, *one-piece* conveyor drive, to give you all these advantages:

- No space wasted on overhead V-belt set-ups. No maintenance catwalks.
- No power lost, because there's no transfer of power from external drives.
- No time spent on V-belt maintenance. Completely enclosed motor with sealed bearings cuts all service to a minimum.
- No layout problems — easy installation.

SAFE

Bauer Self-driven Head Pulley eliminates all hazards due to exposed chains, sprockets, etc., and eliminates the need for space-consuming and time-consuming safety measures.

PROVED

From ¼ to 15 H.P. in all standard widths, Bauer Self-driven Head Pulleys are moving raw materials, products of light and heavy industries, agricultural produce and packaged goods throughout the world. Service and parts are readily available in the U.S.

Ask your conveyor system manufacturer, or write for literature or dealership information to:

ALSO AVAILABLE
BAUER
GEAR MOTORS

Totally enclosed • Fan-cooled • High torque rotor
• Foot or flange mounting •
1/50 to 30 H.P.

FACTORY REPRESENTATIVE

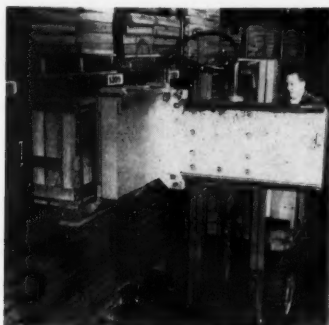
Georg von Opel Corporation

15 William Street, New York 5, N. Y.

BOWLING GREEN 9-5690-1

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MATERIAL HANDLING ENGINEERING



ATTACHMENT stores from right.

Side Loading Saves Space

PUT PALLET loads into racks at right angles to your truck instead of parallel and cut your aisle space by 50 percent.

This was demonstrated by Atlas Lift Truck Rentals & Sales Inc. at a recent showing of the STOW system of storage. The term STOW is derived from Side Transfer Optimum Warehousing.

Developed by Equipment Manufacturing, Inc., it is based on a standard fork truck attachment for side loading.

The attachment can be adapted to any standard counter-balanced fork truck. It will handle double or single faced pallets using 2 x 4 stringers. It will also handle skids, boxes, or racks when equipped with adapters.

A 4000 pound capacity counter-balanced fork lift truck is used with a 2500 pound capacity STOW attachment. Weight distribution puts the load center 22½ inches from the truck axle. Capacity of a 4000 pound truck having a 24-inch load center is cut by 1200 pounds by the attachment.

Racks provided for the STOW system have a special load bearing channel to carry the fork wheel. This relieves the truck of stress while unloading. These channels replace the usual cross members between the shelf stringers.

Aisle widths will vary with the pallet size; they need be just a few inches wider than the length of the pallet stringers. The recommended aisle width for a 40 x 40 pallet, for example, is 60 inches.



Wirebound Boxes And Crates



Wirebound Pallet Boxes



**next best
container to
nature's own!**



WIREBOUND BOXES AND CRATES

CORRUGATED FIBRE BOXES



Wooden Pallets

The shell of the walnut is a typical example of rugged, dependable, functional "packaging". You get the same features in Superstrong Wirebound Boxes, Crates and Pallet Boxes . . . containers built to do a specific job quickly, efficiently, economically. One of our trained Superstrong Wirebound engineers will be glad to give you the rest of the story . . . just let us know where and when!

Call CAnal 6-0973 or write Dept. 300

RATHBORNE, HAIR & RIDGWAY BOX CO

1440 West 21st Place • Chicago 8, Illinois

REPRESENTATIVES IN ALL PRINCIPAL INDUSTRIAL AREAS
Circle 114 on Reader Service Card for more information

We'll be looking for you ...and here are 4 BIG

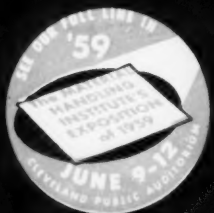


1 L-S SPECIALIZED EQUIPMENT...

Lewis-Shepard is — by far — the largest manufacturer of specialized equipment in the materials handling industry. Some of this equipment will be demonstrated and may be just what you are looking for. Experienced engineers will also be available to assist you with your specialized handling problems.

2 THE COMPLETE L-S MASTER® LINE...

Only Lewis-Shepard's complete line of materials handling equipment offers such a broad variety of manually operated, intermediate and all-electric equipment . . . The proper combination of the 22 products in the L-S line will enable you to purchase a complete handling system from one source.



*If you are unable to attend this exposition,
see the complete L-S line in the
L-S MASTER Line Catalog.
Send for it today.*

at the MHI exposition...
REASONS for you to see us!



3 L-S COST SAVINGS STORIES ...

You'll see actual case reports showing how other companies found solutions to their handling problems... and in a wide range of industries and warehousing where effective use of L-S equipment Saved Space and Cut Handling Costs. An efficient L-S handling system can be Profitable for you, too.

4 NEW L-S PRODUCTS ...

See these new L-S trucks in operation:

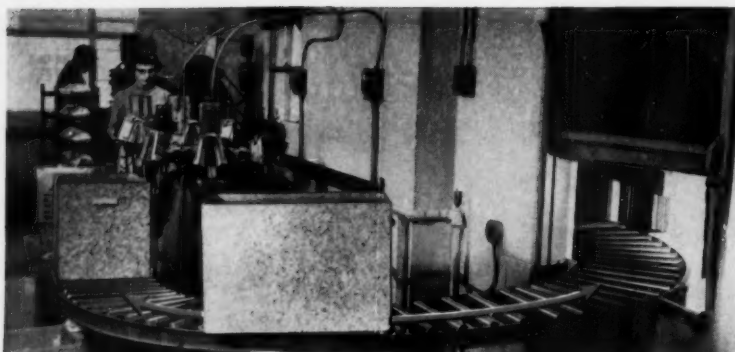
- New Lightweight Hand Lift Pallet Truck.
- New Sit-Drive Electric Fork Truck with Fast Lift Speeds and Short Turning Radius.
- New 24 Volt Narrow Aisle Truck in Straddle and ReachMaster Designs.
- New 24 Volt Rider Electric — the Tops in Fork Truck Value.
- New 2 in 1 Walkie-Rider Tractor.



LEWIS-SHEPARD[®]

The MASTER[®] Line—The COMPLETE Line of Materials Handling Equipment

135 WALNUT STREET • WATERTOWN 72, MASS.



This is one end of a 175-foot Oliver-Farquhar Conveying System. Roll-Free Gravity, Live-Roller and Power Belt units make up a line that runs between this building and another plant.

One profitable operation from Two production plants using OLIVER-FARQUHAR conveyors

This power belt and gravity spur in the Shipping and Receiving Department connects with the main line. A special guide baffle and baffle wheel permits material to go either way on the main line.



A public road separates the two plants of the Steffy Shoe Company, Avon, Pa. But an Oliver-Farquhar Power Belt, Live-Roller and Gravity Conveying System gives Steffy a *direct connection*, both ways, between plants!

In-process materials move by conveyors from plant to plant with a speed and efficiency that guarantees maximum production, maximum profits. A spur line brings the Shipping and Receiving Department conveyor close to both plants to make the whole system a cohesive, smoothly operating unit.

For peak profits in your operations install an Oliver-Farquhar Conveying System now. Mail coupon or write, wire or phone for complete details.

Mail This Coupon . . .



POWER BELT AND
GRAVITY CONVEYORS

The Oliver Corporation
A. B. FARQUHAR DIVISION
Conveyor Dept. M-06, York, Penna.
Factory Branch: 618 W. Elm St., Chicago 10, Ill.
Yes, please send me facts on your conveyors.

Name _____
Company Name _____
Street Address _____
City _____ State _____

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LETTERS to the EDITOR

College Degree in Handling?

SIR:

I am under the impression that there are certain engineering schools now conferring degrees in Material Handling Engineering. However, I do not know which ones they might be nor the curriculum being used.

It would be appreciated by myself and my company if you could give us information concerning this subject or refer us to the proper authority.

W. F. Crandall
Wire Rope Corp. of America
St. Joseph, Mo.

As far as we know, Northeastern University, Boston, is the only school or university offering a degree in Material Handling. Many other schools teach courses, but no degree. (See "MHE's Guide to Material Handling Education," Oct. '58.)

What to Do About Bad Floors

SIR:

I have a shoe factory located in Paragould, Arkansas, and it has a concrete floor. The building has 139,000 square feet all on one floor. I am having difficulty with the concrete chalking and creating quite a bit of dust, and I was wondering if you have any advertisers or information that could help me out on treating this floor to cut down on the dust.

It seems that in many portions of the floor that you could just keep on sweeping right through the concrete, and I am sure that this is because of either a poor mixture or poor ingredients used, but that is already past and right now what I would like to do is try to remedy the dusting.

I would certainly appreciate if you could give me any information that might alleviate this problem.

Kaut White
Ed White Junior Shoe Co.
Paragould, Ark.

Dusting can be cured by spread-



New Towmotor "Pace-Maker" Model Fork Lift Truck

Strength to spare!

From tread to mast a Towmotor Fork Lift Truck is *built to last*. Its all-welded chassis—special carbon-steel carriage—one-piece forged forks—reserve-power engine—*rugged construction from the floor up!*—give Towmotor a margin of extra stamina that outlasts any truck doing anywhere near the same day's work.

See how you can apply this strength to *move more goods, faster, at less cost*. Ask for new "Pace-Maker" Booklet SP-23 . . . and Certified Job Studies applying to your type of handling operations. (Also ask about new foot-controlled *Towmostatic Drive*, available now on some Towmotor models.) Write Towmotor Corporation, Cleveland 10, Ohio.



BOOTHS 1302-1307-1404



LEADERS FOR 40 YEARS IN BUILDING
FORK LIFT TRUCKS, CARRIERS AND TRACTORS

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

Circle 135 on Reader Service Card for more information



NEW...Tennant *Electric* Sweeper

SO QUIET you hardly hear it . . . so efficient it gets dirt other sweepers miss . . . so economical it often pays for itself in a year!

The new TENNANT "80-E" is all this . . . and *more*. It's exclusively "aisle-designed" to clean aisles up to 8½ ft. wide in one round trip. And in open areas it easily sweeps over 90,000 sq. ft. per hour. Cleans a 53" path with side-brush, 42" without.

You'll like its dependable battery power. Easily sweeps a full

shift on a single battery charge (under normal operating conditions).

Economical. A real money-saver, too. Electricity usually costs less than other power. Upkeep is less. And an electric sweeper will generally last longer . . . especially when operating under dusty conditions.

WRITE TODAY for illustrated bulletin. G. H. TENNANT COMPANY, 707E N. Lilac Drive, Minneapolis 22, Minnesota.



Industry's Most Widely Used
POWER SWEEPERS



Model 100 Sweeper cleans 7'4" path



Model 53 Sweeper cleans 40" path



Model 40 Sweeper cleans 34" path

SPECIALIZED MAINTENANCE EQUIPMENT

Circle 131 on Reader Service Card for more information

LETTERS TO THE EDITOR

Continued

ing a special anti-dust powder, mixed with water. However, this is not a permanent cure, and must be repeated periodically for best results. Best bet is a special metallic aggregate (iron concrete) topping over the existing floor. Either way, consult a reputable manufacturer of flooring materials, or flooring contractor.

Driver Training Hits Home

SIR:

The article on selling a driver training program in the February, 1959 issue of MHE was most timely and interesting. We are in the process of developing and installing a material handling program for our company. A part of this program, which we plan to start in the third quarter of 1959, is a driver training program. We would appreciate any literature, information, or brochures on this program that you are free to give out.

A. S. Greer

Chance Vought Aircraft Inc.
Dallas, Texas

SIR:

We have about 30 transporters and tractors in our plant and have a very satisfactory mechanical and battery maintenance schedule which we have been using for three or four years but have had much to desire in the way of driver instruction methods and would very much like to have some program to instill an interest in our operators so that they will feel more responsibility for the care and maintenance of the equipment they are daily using.

Would it be possible to obtain copies of the materials that were used as a basis for the article and outlines of the quiz and review sheets that Mr. Dobbs mentioned in the article?

Chester F. Colwell
Cunco Press of New England, Inc.
Cambridge, Mass.

Author William E. Dobbs has been forwarded these and many other similar requests for more information on driver training.

Economic transfer as . . .

Airlift Roller Moves Containers

IT REQUIRES only air power. It can transfer a container in 10 minutes with no more than two men. It is readily adaptable to existing systems.

Called an airlift roller, the Standard Railway Equipment Mfg. Co. developed it to transfer containers inexpensively between railway cars, trucks, and platforms.

The transfer device was designed specifically for low-volume end-of-the-line transferring. At high-volume transfer points, it is more economical to use high-volume machinery even though it is more expensive.

The roller is easy to handle. With it you can transfer between vehicles or platforms with a difference in elevation of six inches or more. Here's how it works.

The roller is made up of a nylon fabric reinforced rubber air bag about eight feet long. The bag is set on an aluminum roller carriage, and it is covered with an aluminum sheet. A roller is placed in each of the fork truck pockets under the piggy-back containers.

The air bags are then inflated from the truck's air supply or any convenient source. The pressure raises the containers six inches or more. Then you can roll them to the desired location by either a hand winch or auxiliary hydraulic equipment available with the roller.

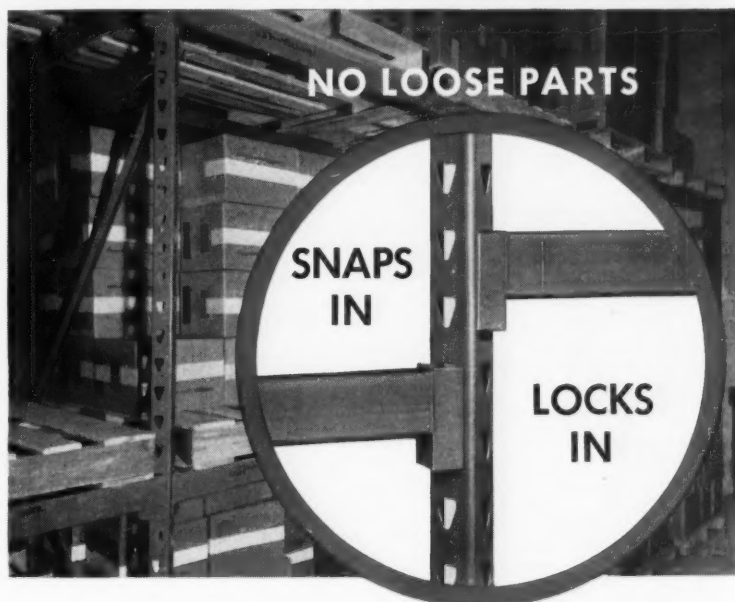
Twelve rollers on the carriage are set in grease-sealed ball bearings. The carriages are hinged at two points to articulate. This allows containers to be moved from lower to higher level, or vice versa.



Stupid machine, won't return my change!

FAST!

EMI *air-row head* FULLY ADJUSTABLE PALLET RACKS



- ★ EASY TO ERECT
- ★ ONLY 2 BASIC PARTS
- ★ SIMPLE TO ADJUST
- ★ QUICK TO RELOCATE

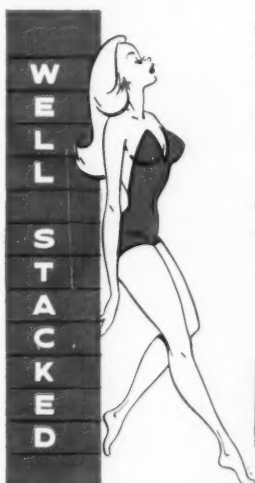
EMI AIR-ROW Head Racks easily adjust to stack pallets, skids, dies and bulk of varying heights. Upright frames are tied together with sturdy steel support beams which quickly snap into AIR-ROW slots in the vertical post. Forge lock fittings on the ends of the support beams insure positive self-locking engagement with no sway or pop-out.

WRITE FOR OUR COMPLETE CATALOG!

You can stack or ship **ANYTHING**
in any industry on EMI racks

EQUIPMENT MFG. INC.

21552 HOOVER ROAD • DETROIT 5, MICHIGAN



Circle 171 on Reader Service Card for more information



REPUBLIC ROLL-OVER TYPE SKID BOXES speed up truck shipments at Jernberg Forgings Company

Saving time, money, and storage space! The Jernberg Forgings Company, Chicago, Illinois, is another company that has gone to Republic Skid Boxes adapted for roll-over and crane handling.

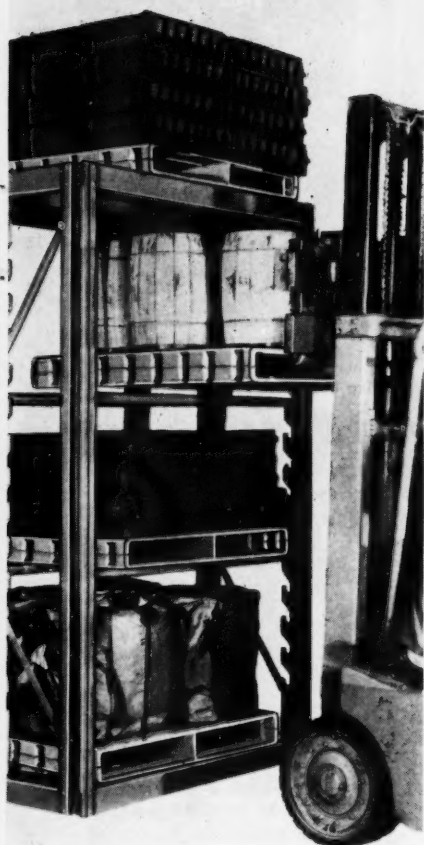
Jernberg, a major producer of automotive transmission parts, uses 200 such boxes for storage and subsequent loading of finished forgings into trucks for shipment. They've found that one man now loads a truck in less time than was required by using previous methods.

Another 200 boxes— $\frac{3}{4}$ standard size—are used for collection and storage of 3,200-pound loads of cold-sheared forging billets. Despite the extreme weight, Jernberg stacks the boxes high, reducing storage

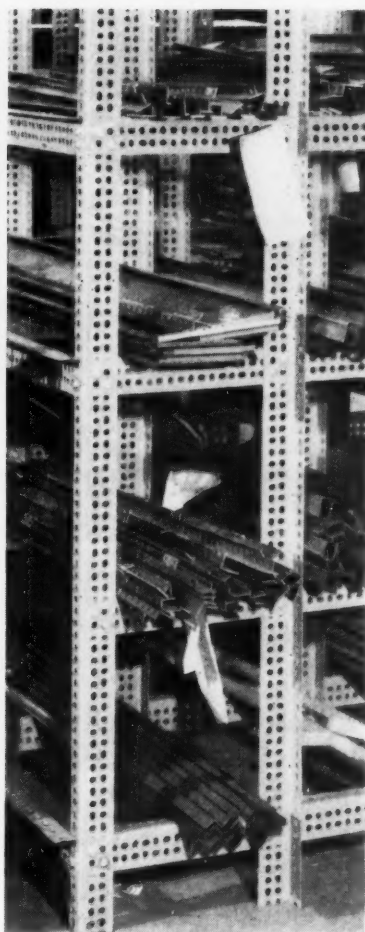
space requirements. This helps save time, too.

Stacking does not damage the boxes. Rugged, corrugated construction and heavy-duty stacking brackets permit tiering to any practical height... assure long, efficient service at lowest overall cost. In addition, four-way fork channels simplify handling in restricted space. Smooth channel around the top eliminates sharp edges.

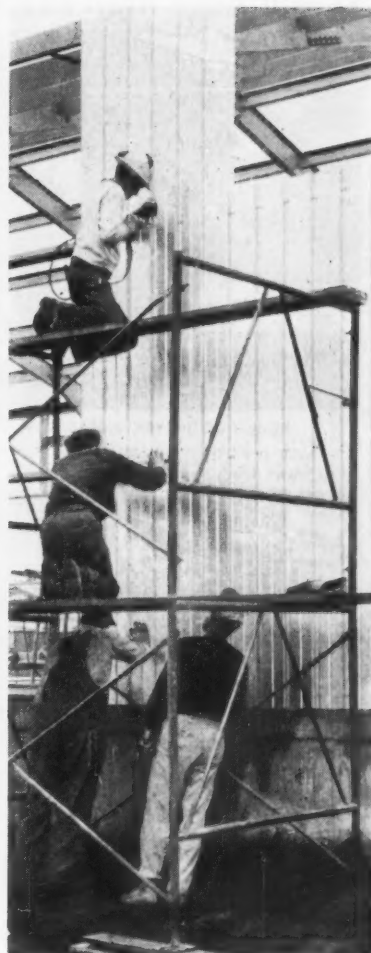
Like the Jernberg Forgings Company, you'll find that the materials handling engineers of Republic's Berger Division can help you save time, money, and storage space in your plant. Let them work with you in solving your materials handling problems. Call your Republic representative or write direct.



REPUBLIC STEEL PALLET RACKS save space and simplify palletizing and stacking of bulky, uneven, odd-lot and fragile materials. Tubular steel supports adjust every six inches to handle palletized material of any height. Two-way entry permits loading and unloading from either side. Select single pallets from any level without restacking. Write for complete description, specifications, and quotations. Or, have a Materials Handling Engineer call.



REPUBLIC METAL LUMBER® saves time, space, and money. Precision engineered system of short slots placed to allow 3/4" vertical and horizontal adjustment, offers unlimited applications. Simply measure, cut, and assemble. Delivered in bundles of 10 angles, .080 gage or .104 gage, 10- or 12-foot lengths, bolts and nuts included. Stores in space of one 2" x 4" piece of lumber. Bonderized to resist rust. Baked enamel finish. Mail coupon for idea-packed catalog.



TRUSCON "BUDGET BUILDINGS" . . . 3-WEEK DELIVERY from order to job site! Here's top utility at lowest cost—the fast, easy way to provide industrial housing or to enlarge manufacturing facilities. "Budget Buildings" are available in widths of 12, 16, 20, 24, and 28 feet—in heights of 10 and 12 feet; and in widths of 32, 36, 40, 44, and 48 feet—12- and 14-foot heights, in any length necessary. Roofing, siding, windows, doors, hardware shipped as a package. Send coupon for brochure.

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- ☐ Have a materials handling engineer call.
Please send more information on:
☐ Republic Materials Handling Equipment
☐ Steel Pallet Racks
☐ METAL LUMBER
☐ Truscon "Budget Buildings"

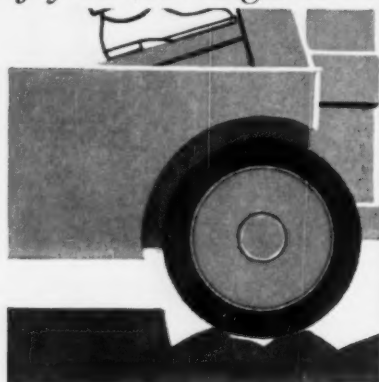
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Company _____

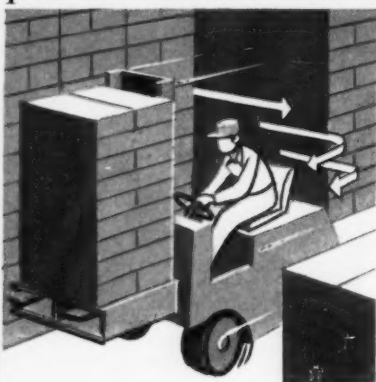
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City _____ Zone _____ State _____

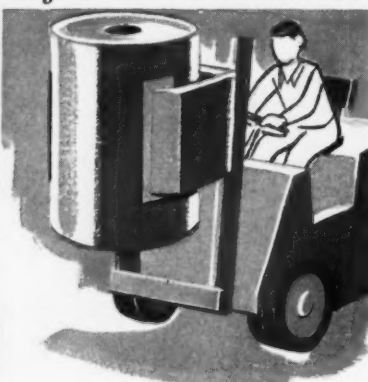
If you have high tire replacement costs because of these conditions...



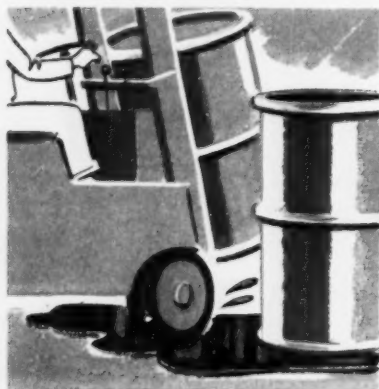
ROUGH OR UNEVEN SURFACES
you need tires resistant to severe shock loads



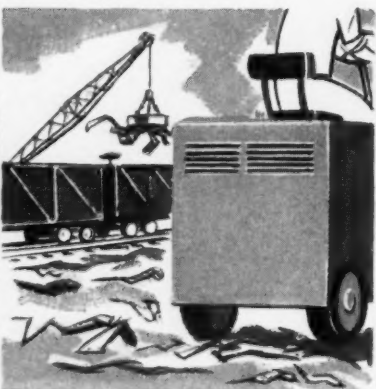
TIGHT TURNS
you need tires resistant to separation at rims



OVERLOADS
you need tires resistant to under-cutting and separation



CHEMICALS OR SOLVENTS
you need tires made from special Neoprene stocks



METAL SCRAP OR DEBRIS
you need tires resistant to cutting and chipping



HOT ROD DRIVERS
you need a better driver training program

...switch to **MONARCH** solids and save!



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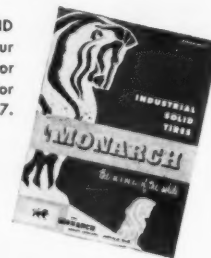
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FOR DETAILS AND SPECIFICATIONS, ask your Monarch dealer . . . or write direct . . . for CATALOG MR-457.

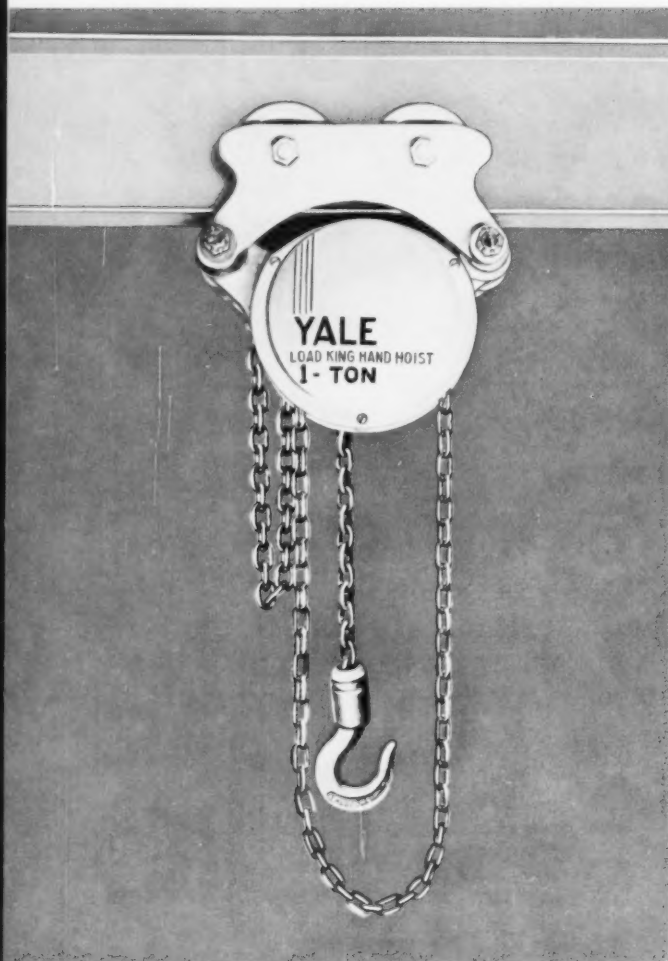


MATERIAL HANDLING ENGINEERING
Circle 148 on Reader Service Card

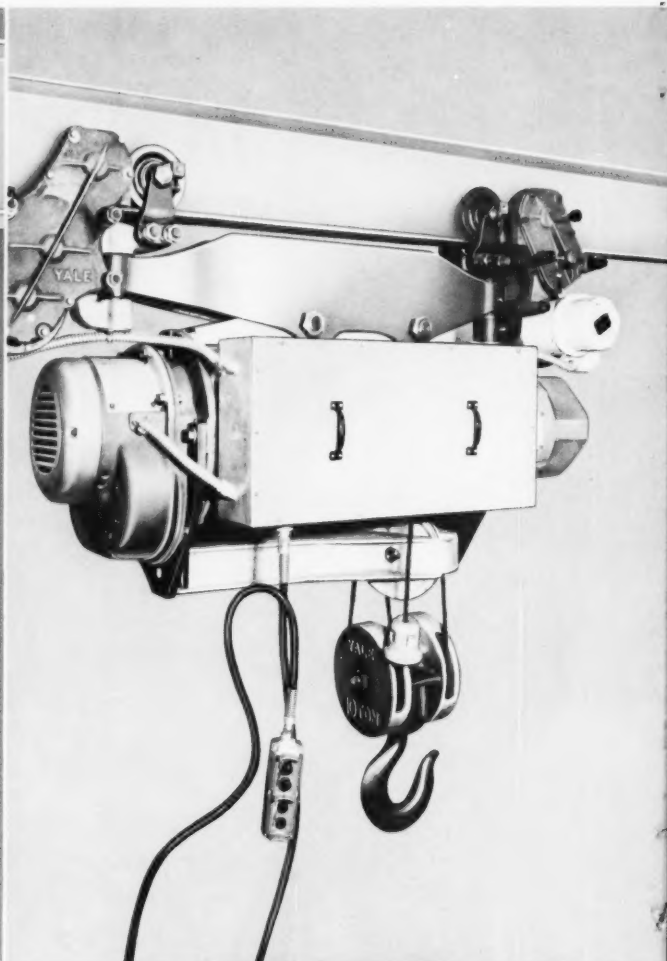
**OVERHEAD
PRODUCTION
COSTS COME
DOWN...YOUR
PROFITS GO UP**



YALE'S 4 NEW LINES OF MAJOR ECONOMIES IN YOUR



NEW YALE LIGHTWEIGHT TROLLEY HAND HOIST CUTS COSTS 4 WAYS! Economical because it offers up to 95% efficiency—lifts ½ to 12 tons with amazing speed for a hand hoist—has shielded bearings prelubricated for life—fewer parts to maintain. Synchromatic load break spells extra safety. Light aluminum casing provides greater maneuverability. Trolley an efficient headroom saver of maximum flexibility. For all its lightness, this new Yale hoist is durable—depend on it to give year-after-year-after-year service.



NEW YALE SELECTRON 5-SPEED HOIST CONTROLLER CUTS COSTS THROUGH LOW INITIAL INVESTMENT—PREVENTS LOAD DAMAGE. Exclusive design of hoist motor and controller combination permits precise speed control at cost, unavailable before except with high-cost, elaborate systems. 5 independent speed points from creep to high! Assures smooth starting of delicate or heavy inertia loads! Gives multi-speed regulation where constant or variable loads must be accurately spotted. For hoisting or crane operation on Cable King Electric Hoists.



LOAD KING HAND HOIST.
Rugged, lightweight, portable.
High mechanical efficiency.
Capacities: ½ to 12 tons.



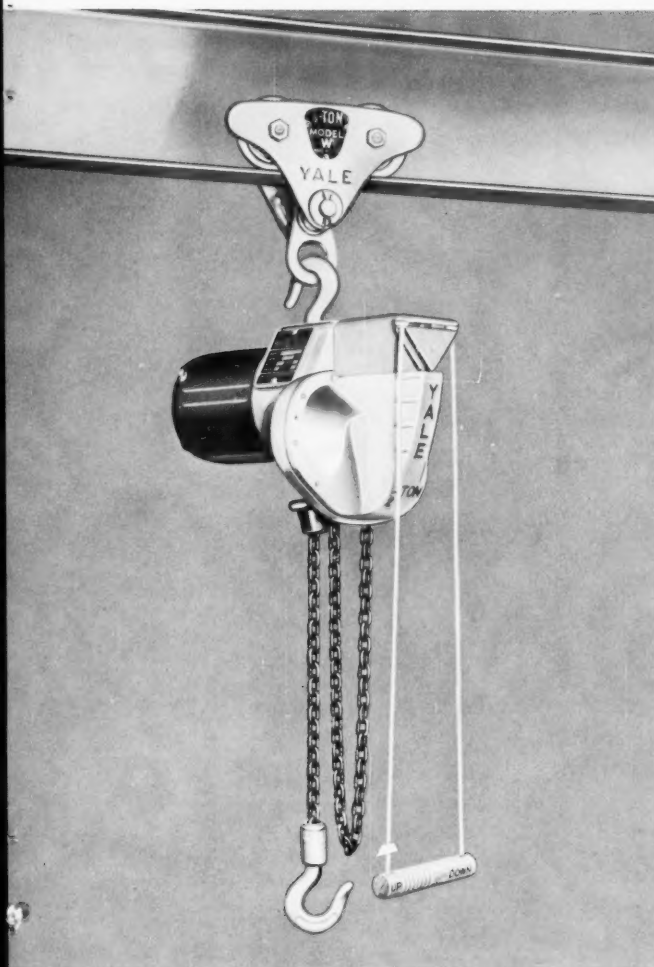
CABLE KING ELECTRIC HOIST.
Exclusive air-cooling system
for continuous heavy duty.
Capacities: ¼ to 15 tons.



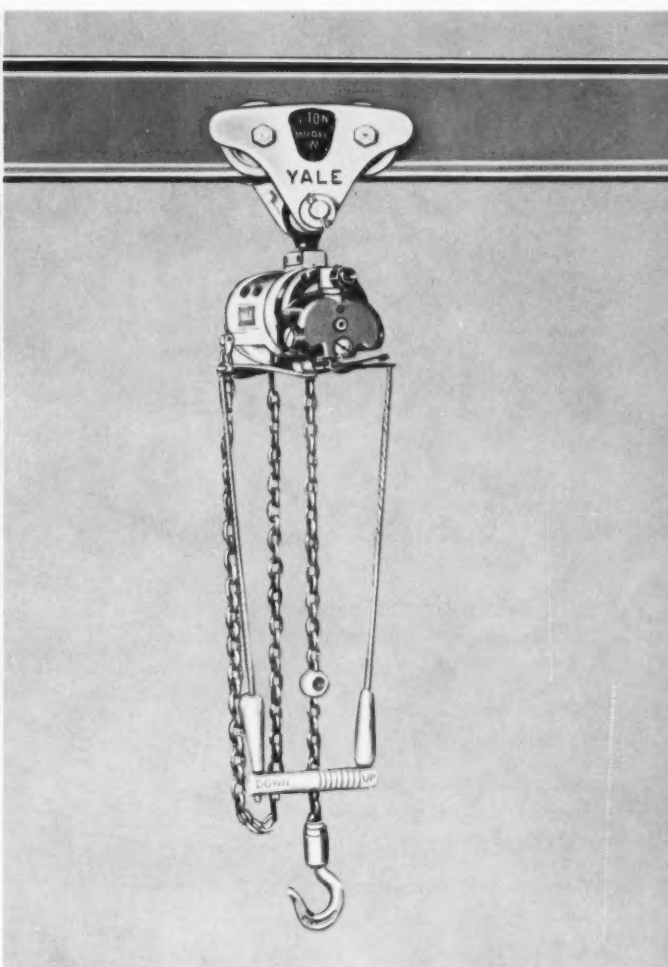
LOAD KING ELECTRIC HOIST,
wire rope models ¼, ½ and
1 ton capacities. Link chain
models ¼, ½, ¾, 1 and
1½ ton capacities.

FOR THE MOST ECONOMICAL, DEPENDABLE AND DURABLE OVERHEAD HANDLING EQUIPMENT AVAILABLE,

HOISTS WILL EFFECT OVERHEAD OPERATIONS



NEW YALE LINK CHAIN MIDGET KING ELECTRIC HOIST CUTS COSTS THROUGH SPEED! This electric hoist speeds production for only a few pennies a day. Flexible, maneuverable link chain lets you reach out for a load instead of having to be right over it. Easy-to-operate one-hand grip control. Two-brake safety—motor brake for spotting and inching—Weston-type, self-actuating load brake acts as lowering speed governor, sets automatically in event of motor brake failure. Safety limit stops—fracture-resistant hooks—lifetime alloy gears—precision ball bearings. Capacities: $\frac{1}{8}$ to 2 tons.



NEW YALE AIR HOIST CUTS COSTS BY MINIMIZING HAZARDS! Air-cooled motor cannot overheat—explosion-proof—lessens fire hazard. Smooth lifting and lowering protects against spillage and property damage. Motor cannot burn out. Maintenance minimized by fewer moving parts. Automatic brake locks when power is off. The safety and maintenance features of this quiet-operation hoist pay off because they're economy features, too! Capacities: $\frac{1}{4}$ to 1 ton—hook or trolley models—roller or link chain—lever pendant or pull cord control.



RAIL KING TRACTOR TROLLEY
— motor driven. Push-button control—pulls any type equipment. Capacities: $\frac{1}{2}$ to 3 tons.



MIDGET KING ROLLER CHAIN HOIST with 2 brake safety—motor brake and load brake. $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1 and 2 ton capacities.



PUL-LIFT—portable. Roller-chain models $\frac{3}{4}$ to 15 ton capacities—link chain models $\frac{3}{4}$ to 3 ton capacities.

CHOOSE FROM YALE'S COMPLETE LINE OF ELECTRIC, AIR AND HAND HOISTS, PUL-LIFTS AND TROLLEYS

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He carries the finest, most complete line of overhead materials handling equipment available—the Yale line.

He is a well-established, responsible businessman interested in his community—and your overhead production problems.

You can depend on his knowhow in advising you as to the best hoist for the job.

His men are skilled and trained—often graduate engineers. They know hoists and overhead production problems.

You can depend on him for prompt, efficient service.

You can depend on him for prompt and courteous attention to your order.

You can depend on him for prompt delivery.

And to supply him promptly and keep him adequately stocked there is the vast Yale field organization which maintains 65 conveniently located parts depots and 24 repair centers.

For further information contact your Yale Distributor (he's listed in the Yellow Pages) or write to Yale & Towne Mfg. Co., Yale Materials Handling Div., Philadelphia 15, Pa., Dept. ZH-4-H.

Yale Materials Handling Division, a division of The Yale & Towne Manufacturing Company.
Manufacturing Plants: Philadelphia, Pa., San Leandro, California, Forrest City, Arkansas.
Products: Gasoline, Electric, Diesel and LP-Gas Industrial Lift Trucks • Worksavers • Hand Trucks • Warehouse • Industrial Tractor Shovels • Hand, Air and Electric Hoists

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INDUSTRIAL LIFT TRUCKS
TRACTOR SHOVELS • HOISTS

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B.F. Goodrich makes a complete range of sizes and variety of tread designs, including the new All-Purpose.



Solid

Which is right for you—Pressed-On Solid in regular or Deluxe Cushion, or Vulcanized-On Solid? What tread design? What compound?

Your B.F. Goodrich Analysis man gives you industrial tire advice . . . FREE!

Problem: There are many variables in industrial tire types, sizes, tread compounds and tread designs. Do you know which tire is right for your materials handling job?

Solution: Without cost or obligation your B.F. Goodrich Tire and Wheel Analysis man will study your equipment, loads, hauling surfaces and other special problems you have. He'll recommend the right tires for you to use—recommendations that are unbiased because B.F. Goodrich makes a *complete* line of industrial tires.

Result: You save as much as 50% on industrial tire costs, as much as 20% on maintenance costs! Mail the coupon today for your FREE B.F. Goodrich TW Analysis.

A special consulting service is available to manufacturers of materials handling equipment.

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I would like further information on your FREE TW Analysis.

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Smileage!

B.F. Goodrich *industrial tires*

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MAY, 1959

◀Circle 148 on Reader Service Card

Win a Thunderbird or Corvette in the B.F. Goodrich Truck Tire Mileage Contest. See your B.F. Goodrich dealer for entry blanks.



NEWS ABOUT SPHE

A Tale of Two Chapters

by John Mount, president, SPHE



AS PRESIDENT of our society, I have had the opportunity and good fortune to visit many of our local chapters. I find these visits very enlightening in a number of ways. During the course of the year I would like to visit every SPHE chapter, but time and the expense account won't permit it.

Let me tell you a little story about two of these visits.

Just recently I visited our newest group, the Kentuckiana Chapter, in Louisville. I suppose youth is always vigorous, full of ideas and the incentive to carry them out. I can tell you with confidence

that we have such a group in Louisville. They're a healthy, up-and-coming chapter. The members are interested in what a professional engineering society has to offer. They're also interested in what they can do to promote such a society. They fully believe in the old axiom that the more you put into such an organization, the more you get out of it.

Now contrast this with another of our chapters that I visited about the same time. This one is one of our oldest chapters. A number of years ago it was one of our best. But now it's in a rut. The members have become inclined to just coast along. They feel that those interested in packaging and material handling should seek them out.

In my opinion, no society or group, be it social or professional, can assume this attitude and continue to prosper.

Perhaps the fault with the older group was that the members had stopped electing new men to their

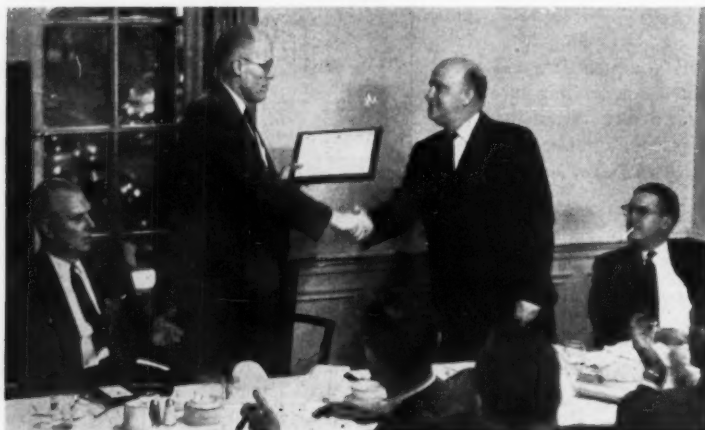
executive group. New blood was lacking among the officers. As a result, everybody in the group came to depend too much on the president. They looked to him to arrange meetings and programs, see to it that members came out, solicit new members, and take over all the chores that are usually divided among the officers and committee heads. For a long time this leading member carried the whole load himself. Then the inevitable happened: eventually he got tired, and moved out of the picture. But there was no one in the group prepared to take over, to fill the vacuum created when he stepped down. As a result, they floundered. They're still floundering. And undoubtedly they'll continue to flounder until the members come to realize only *they* can do anything about it.

My message is as simple as that last statement. I've said it before. *Our society is, and will be, just as good as we the individual members are willing to make it.*

Let's not get complacent. In order to keep growing and improving, we've got to continue to work for the present and plan for the future.

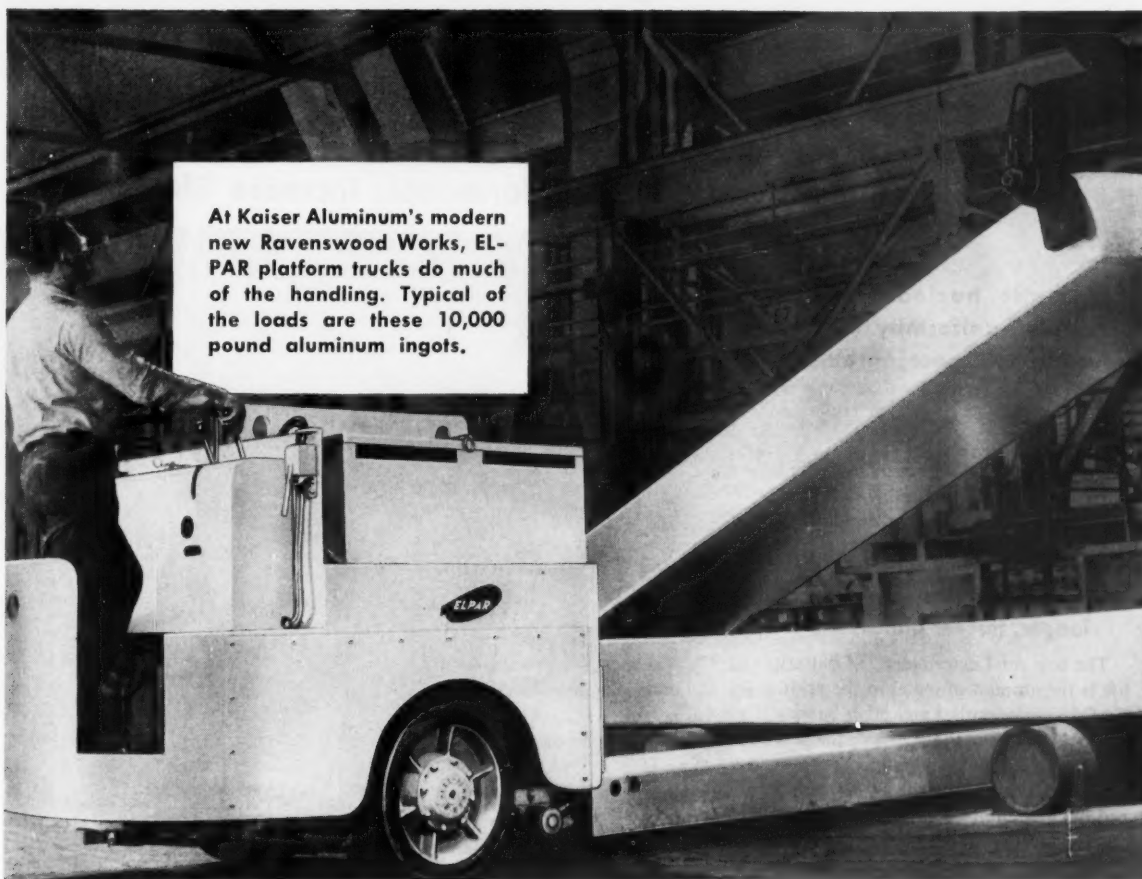
This is your society. It exists for you. But its power to help you depends on how much you as members help it. Not just by going to meetings and paying dues, but also by active participation in chapter and national affairs.

Kentuckiana Chapter Inauguration



LOUISVILLE—Inauguration ceremony as Kentuckiana Chapter becomes newest SPHE chapter. C. R. Gustafson, vice president of the new group, receives charter from K. V. Moulton, regional director. Shown (l to r) are John Mount, national president; Gustafson; Moulton; and C. A. Connolly.

TUCSON—A plant tour of Hughes Aircraft Co. here highlighted the April 20th meeting of the Arizona Chapter. The next meeting will be on packaging and handling to reduce damage claims. It will be at the Prime Rib Room, May 18th. This group recently sponsored four high school students during Arizona Engineers' Week.



ELPAR platform trucks— SLASH HANDLING COSTS ON BIG-BULKY LOADS

Ideal for handling bulky, extra long or irregularly shaped loads, ELPAR platform trucks are the safest and most economical trucks for horizontal hauls.

Because the load is supported by wheels under the platform — vs. fork trucks that carry loads cantilever fashion — you can handle bigger pay loads on a smaller truck. Result: Initial cost can be cut as much as 30%.

Another advantage — ELPAR platform trucks are simpler in design. Thus, maintenance costs are as much as 25% less than the average fork truck of similar capacity.

Four wheel steer for maneuverability, end control for better operator vision, and unlimited platform sizes to suit almost any load add to the convenience of platform truck handling.

Investigate the advantages of low lift platform trucks for your horizontal handling jobs. And, don't forget Elwell-Parker builds more platform trucks than any other truck manufacturer.

ELPAR electric powered platform trucks from 4,000 to 80,000 lbs. capacity — also 6,000 and 10,000 lb. gas powered models.

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TWICE THE LIFE... ONE-THIRD THE OPERATING COST

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New C&D AccuPak*

plates improve battery performance; increase life!



Automatic nuclear control holds plate uniformity to finest possible tolerance; provides 100% inspection!

Electric truck battery users will find three major advantages in C & D *Slyver-Clad*® batteries containing the exclusive, new *AccuPak*® plates:

1. Extra long life—because of longer, thicker plates.

The true final determinant of battery life is the amount of metal in the grids. C&D batteries outlast any other battery because they have the heaviest, thickest plates made. The maximum cross-sectional area grid is cast by a special process that eliminates flaws, shrinkage, cracks, and dross inclusions.

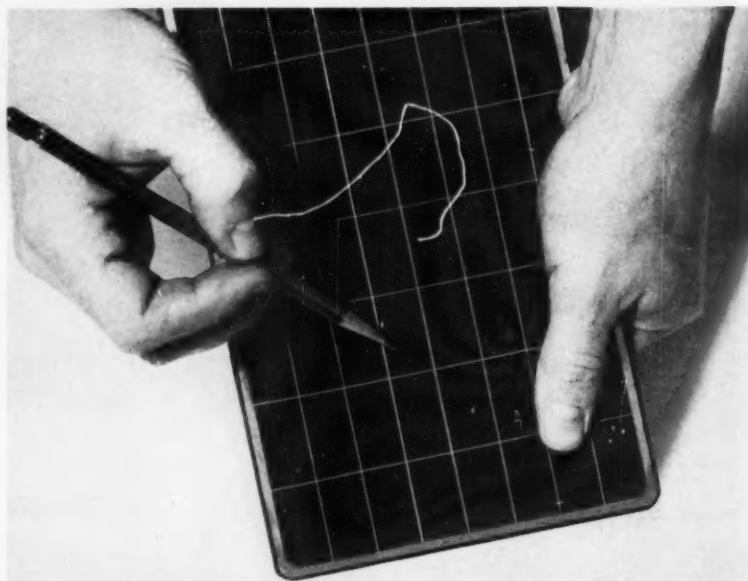
2. Extremely uniform *AccuPak* plates; no low cells; high capacity to end of life—due to *AccuRay* control of pasting.

C&D uses *AccuRay*** to automatically control the amount of active materials going into the grid structures of both positive and negative plates! C&D is the only industrial battery manufacturer using *AccuRay* control.

The use of *AccuRay* to control the pasting operation means that plates have maximum uniformity of weight, density, and thickness of active material. *AccuRay* controls uniformity to within



Exclusive *AccuRay* control—another C & D first—once again sets the pace for the battery industry. *AccuRay* automatically controls weights of all battery plates to a point of uniformity heretofore impractical.



Precise weights and amounts of lead oxides must fill the especially cast battery plate grids to assure the maximum capacity and electrical characteristics.

$\pm \frac{1}{2}\%$ and automatically subjects every plate to a 100% inspection.

3. No life-shortening nor capacity drop-off due to sediment build-up—because of *Slyver-Clad*® insulation and retention.

The longer, heavier, more uniform plates are then wrapped with the time-proven C&D *Slyver-Clad* five-fold insulation. This consists of a layer of extremely fine parallel glass filaments or sliver, a vertical glass wrapping, a horizontal glass wrapping, a perforated plas-

tic retainer, and finally a microporous rubber separator.

The combination of these five layers of retentive materials virtually eliminates shedding, or loss of active material, with its accompanying life-shortening build-up of sediment in the bottom of the container. Thus, a huge bottom sediment space is not needed. C&D fills this space in standard containers with the heaviest, thickest plates available in any industrial battery.

For full information on C&D *Slyver-Clad* batteries featuring *AccuPak*, write for Bulletin IT-530.



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C & D BATTERIES, INC.

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Manufacturers of *Slyver-Clad*® Industrial Batteries • **PLASTICELL**® and **PLASTIC-CELL**® Batteries for Communications, Control and Auxiliary Power • Producers of *AutoRay*® Silicon Chargers

*Trademark, C & D Batteries, Inc.

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Circle 26 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING

People Make An Industry

It's fairly easy to see the results of mechanization. Often we can compare a new system with an old one. We're not always precise. Haphazard costing methods prevent that. But broad gains can usually be shown. This is particularly true in the application of new material handling techniques.

As we go about the country, studying results in all sorts of handling operations, we see results from satisfying to sensational. And we're fascinated by the mechanics of systems. So, it's also easy to credit the machinery rather than the men who designed, built and installed it.

This month, we're going to give over-due recognition to material handling engineers—especially to members of the American Material Handling Society, which is celebrating its tenth anniversary.

Over the past decade, these engineers haven't hit the headlines as often as the atomic physicists or missile men. But our guess is that they have contributed as much to the national well-being. Probably much more. In addition to what they've done for industrial production and commercial operations, they've applied their specialties to handling atomic stuff and missiles. Maybe the reason they haven't been as prominent in the press is that they've been too busy breaking records and setting new standards for industry, commerce and defense efforts. (As I've said at many an AMHS meeting, we do a poor job of publicizing our deeds and aims.)

Who are the men who have, in so short a time, brought AMHS to its present position as one of the world's leading technical societies? What characterizes them?

To begin with, they were attracted to each other by a common interest: material handling. They formed a group "to advance the theory and practice of material handling and allied arts and sciences through research, discussion, and other appropriate means." (This quotation comes from a statement of AMHS national objectives.)

They are men of many titles. They work in dozens of different industries. Their accents vary widely. But they think, talk and dream about the design and application of handling, packaging and shipping equipment when two or more get together.

Members of AMHS represent five main groups: users, manufacturers, sellers, consultants, and teachers. All are avid students. And they have the confidence, the aggressive and imaginative spirit of pioneers.

Next month, about 1200 AMHS members and friends will celebrate the Society's tenth anniversary with a big banquet in Cleveland during the Material Handling Institute's Exposition. Although all people who attend the Exposition are invited, it is likely that late-comers will not sit in the main dining room. A measure of AMHS growth can be seen in the fact that half the banquet reservations had been made before the end of January.

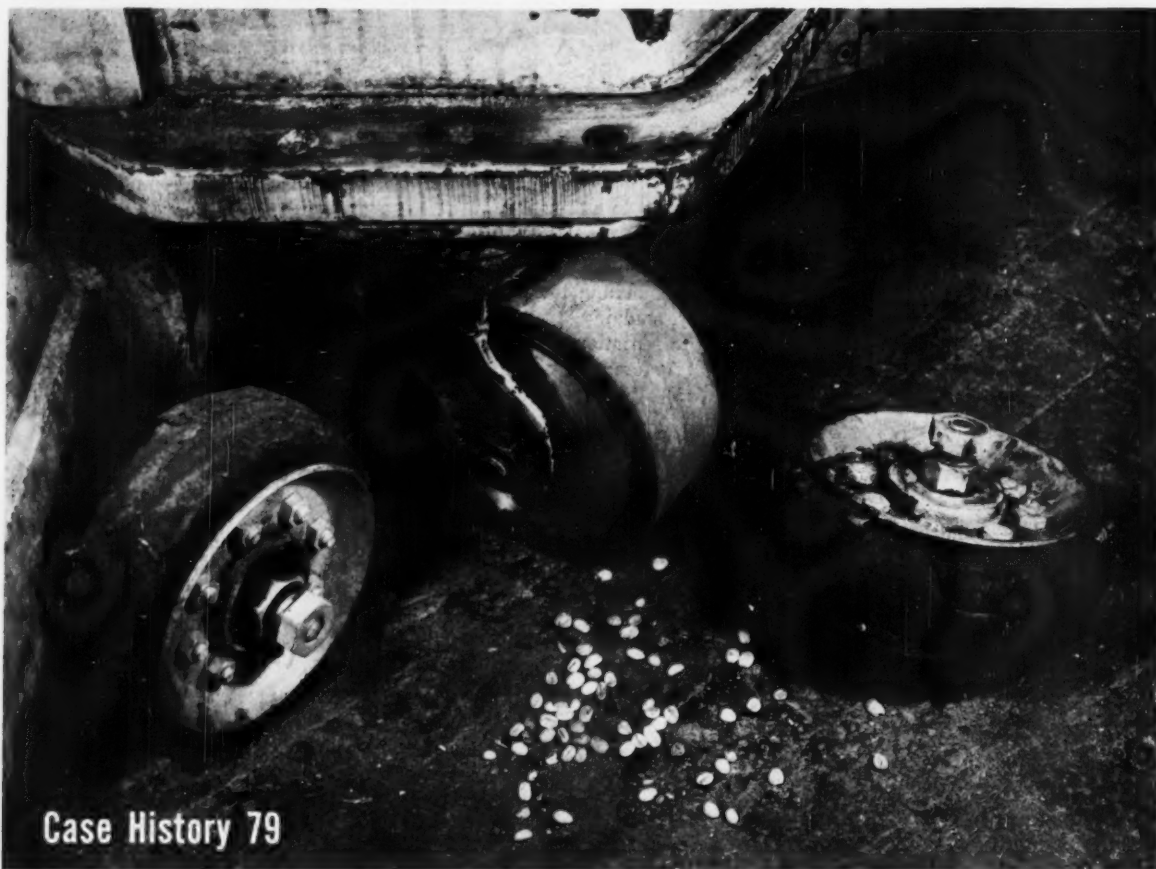
AMHS has also organized the technical conferences to be held during the exposition. Many of the speakers and discussion leaders—noted authorities on material handling, packaging and shipping—are AMHS members.

Outside of the material handling industry, there will be little national publicity on the banquet or conferences. But industrial history will surely show that AMHS men have helped much to create a new science in the little time they have worked together.

We on the staff of MATERIAL HANDLING ENGINEERING are proud to be associated with them.

Ed Leighton Executive Editor

DISOWHEEL does it again—



Case History 79


ends tire failures at Cadillac Coffee plant!

At the Detroit plant of the Cadillac Coffee Company, sharp edged coffee beans would often burst their bags or leak onto loading area floors. Because of their sharp edges these stray beans would cut into tires, causing them to “chunk” out.

Rubber tires had an average life span of 30 days (*photo above, left and right*)—a plastic composition wheel lasted only 90 days. DISOWHEEL® (*center*) shows *no appreciable wear after 18 months!* No “chunking” out or “peeling” off...

and costly downtime was cut to the bone!

The key to DISOWHEEL success is in its tire, made of DISOGRIN®. This polyurethane elastomer is “strong as steel, resilient as rubber”...outlasts rubber and most synthetics 4 to 10 times...takes bigger loads...cuts power consumption.

Trucks and goods move faster on DISOWHEELS, so specify DISOWHEEL (in pallet or press-on size)—with the distinctive  emblem.

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MATERIAL HANDLING ENGINEERING



AMHS Celebrates 10th Year

THIS JUNE the American Material Handling Society, Inc., will hold a banquet to celebrate its tenth anniversary. There's good reason to celebrate. Ten of the most beneficial years for material handling have passed since AMHS was founded in 1949.

Today AMHS has over 5000 members who belong to 47 active chapters in the United States and Canada. And there are members-at-large in Arabia, Australia, Brazil, Canada, Cuba, China, England, Finland, France, Germany, Holland, India, Indonesia, Israel, Italy, Mexico, Netherlands, Norway, Philippines, Puerto Rico, South Africa, Sweden, Switzerland, United States, and Venezuela.

AMHS has charters of affiliation with Arbeitsgebeit Materialfluss im RKW Germany, the Centre D' Information de la Manutention, the Institute of Materials Handling in England, the Japanese Material Handling Society, and Materials Handling and Construction Plant Association of South Africa.

MATERIAL HANDLING started to flex its muscles during World War II. Then the country needed to produce weapons and supplies at a fantastic rate and had to ship them just as fast. Material handling equipment was the answer. And the men who knew how to set up handling systems gained new stature.

After the war many material handling men wanted to keep this spirit of progress alive. One way to do this was to meet in small groups to talk shop, compare notes and work out problems. These meetings started as early as 1943.

In 1945 T. O. English of Aluminum Co. of America and a group of fellow enthusiasts were meeting in Pittsburgh. In 1946 C. F. Gross of C&D Batteries and J. B. McGinn were leading a material handling group in Philadelphia. W. W. Phillips of Eli Lilly & Co. did the same in Indianapolis.

Starting in 1947 two officers of Material Handling Institute, president Samuel Gibbs and secretary-treasurer R. Kennedy Hanson, started a "user chapter" program. This idea caught hold among material handling men. It would be a society for pooling information and bringing handling men together. A society

that would raise material handling engineering to a profession. A society that could awaken management to the untapped benefits material handling had to offer. A society like this would be a good thing, and in January 1949 it became a reality as The American Material Handling Society. Walter A. Metcalf became president; Roger N. Burgess, vice-president; Irving M. Footlik, secretary; Wendell W. Phillips, treasurer.

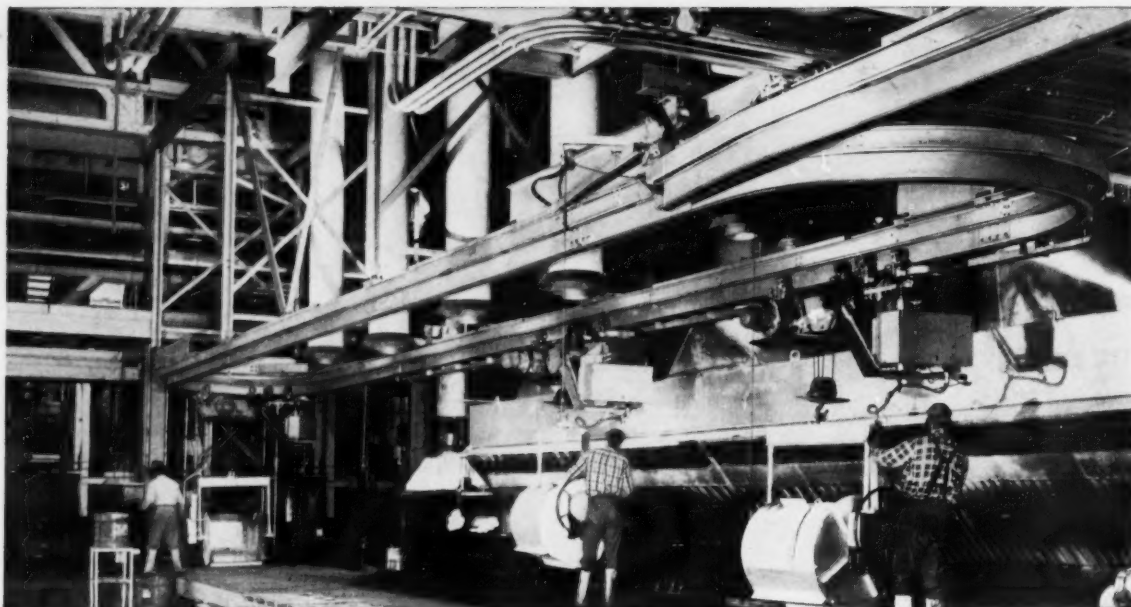
LATER THAT YEAR the Material Handling Institute relinquished its authority over these user chapters and paid for their incorporation on June 4. On June 25, 1949, the first national meeting of AMHS was held in Cleveland. A. K. Strong was elected president; H. H. Hall, vice-president; I. M. Footlik, secretary; and W. VanAllen Clark, treasurer.

From that time on the society took on the responsibility of informing and educating material handling men and their management. A big step in that direction was the sponsoring of the 1951 Material Handling Conference in conjunction with the Fourth National Material Handling Exposition. (This year AMHS will continue in that tradition by sponsoring the Technical Sessions at the MHI 1959 Exposition, along with American Society of Mechanical Engineers and Society for Advancement of Management.)

Helping the United States Government became a part of the AMHS tradition. By 1950 the chairman of the military and foreign affairs committee was working with the Munitions Board and various military departments to offer material handling help as part of the national security program. Since then AMHS has aided many branches of the government, including the Post Office.

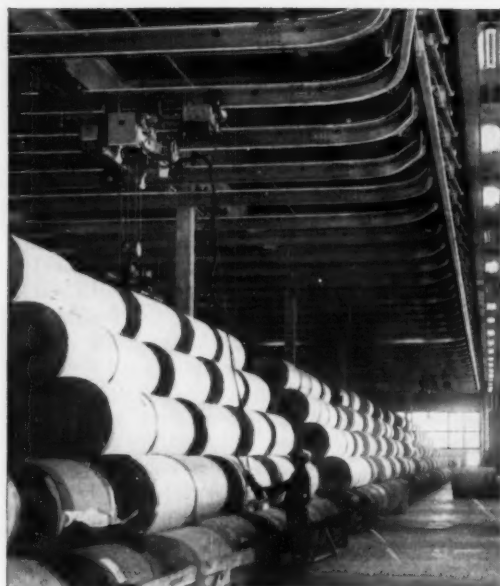
In 1952 president Donald Pennock told the national board members: "*Under your guidance, your members have become the modern men of magic in our industrialized society. People everywhere, in every walk of life, are benefiting from your contribution to the AMHS movement.*"

The past ten years have certified the truth of this statement. AMHS men all over the country have made it so.



Here's a way to make your lost ceiling space pay off

AMERICAN MONORAIL



Floor space is unobstructed, free of traffic with American MonoRail overhead handling.

**increases plant capacity...
cuts handling costs...
reduces worker fatigue...
minimizes damage and loss.**

You can get more profit out of your plant. American MonoRail Engineers can show you how to convert lost ceiling space—eliminate obstructive storage around machines—and gain additional operating area. Find out how you can process work in motion, cut down idle time, and assure safe handling of product. Work can be done at comfortable heights—worker fatigue lessened—heavy loads eliminated—and damage to product reduced.

Let American MonoRail Engineers plan your handling. Write for full information today.



ENGINEERED MATERIALS HANDLING

13129 ATHENS AVENUE
CLEVELAND 7, OHIO



AMERICAN MONORAIL

MEMBER OF MATERIALS HANDLING INSTITUTE AND MONORAIL MANUFACTURERS ASSOCIATION
Circle 7 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING
Circle 31 on Reader Service Card➤



Clark *Ranger* loads a flat-bed delivery truck at yard.



Ranger is then towed to job site at 55 mph.



Truck parks while *Ranger* delivers over rough terrain.



Ranger positions material right where it's needed.

Mud or sand is no problem...neither is distance!

Slip the new *Ranger*® in 4-wheel drive and run a full load of heavy materials through mud, slush, or soft sand with no bog-down, no stoppages. Use the *Ranger* to load in your yard, drive or tow it on the highway at speeds to 55 mph... then use it to deliver materials over terrain that's impassable for regular highway vehicles. With the *Ranger*, you're able to spot the load right where you need it... even 24 feet in the air.

A *Ranger* will work anywhere... everywhere. In fruit groves, for example, a new type steering action enables the *Ranger* to maneuver large boxes of fruit around closely planted trees. In saw mills, block plants, steel mills... the *Ranger's* unique

design makes yard surfacing unnecessary.

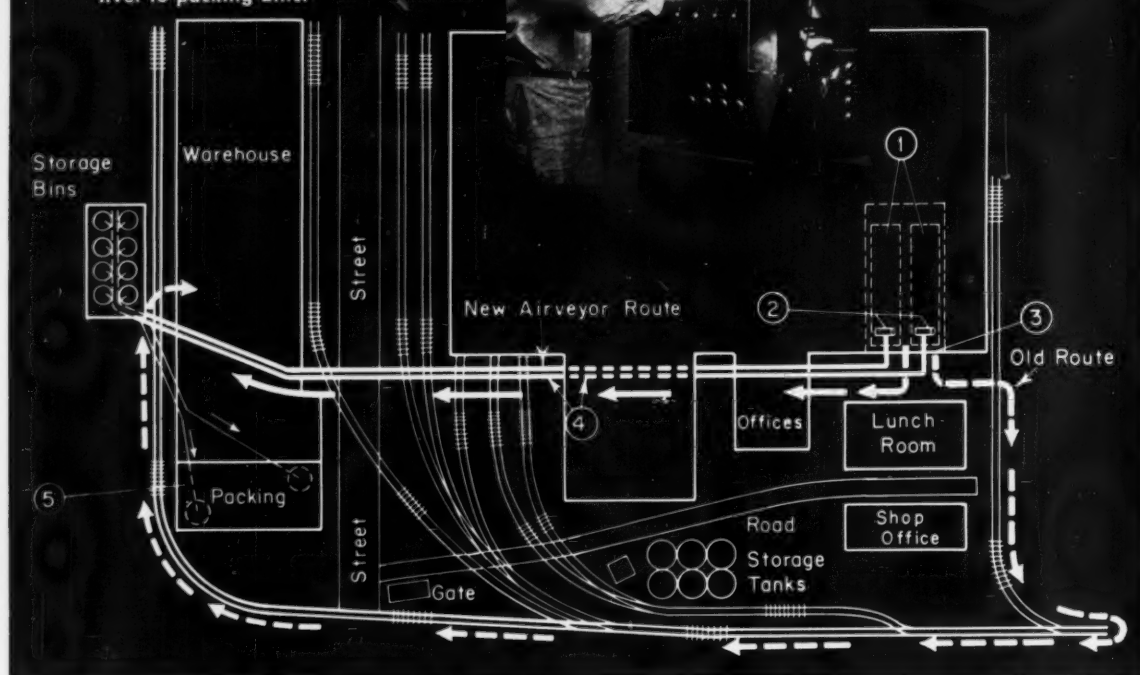
A 4,000 lb. capacity *Ranger** can climb a 43% grade fully loaded. This work-anywhere fork truck has power steering, vacuum brakes, high underclearance, high flotation, big-cleat tires... in fact it has everything needed to do the toughest jobs... under the most adverse conditions.

A special brochure and spec sheet is available upon request. For your copy write: *Ranger*, Clark Equipment Company, Battle Creek, Michigan.

*Also available in 6,000 lb. capacity

**CLARK®
EQUIPMENT**

- 1 Two 10,000 lb. per hour starch driers.
- 2 Two Airveyors pump dried starch to storage bins.
- 3 Starch was bagged here and taken over old route to storage.
- 4 New Airveyor route is direct; passes through or over obstructions.
- 5 Airveyors reclaim stored starch, deliver to packing bins.



PLANT MODERNIZATION THROUGH PNEUMATIC CONVEYING

FULLER pneumatic conveying system increases production without plant expansion

To increase production, the Union Starch and Refining Company's Granite City, Ill., plant first needed to expand their materials handling system. But a complete revamping of bagging and warehouse operations was impossible because there was no space available for necessary new buildings.

An Airveyor® System, engineered and built by Fuller, was the answer. Airveyor's extreme flexibility allowed it to be set up through walls, along sides of buildings, over streets, on roofs and up inclines. At Union Starch, the total

distance covered is 800 feet, with a number of 45 degree and 90 degree bends in the line.

The Fuller Airveyor system transports the starch in two phases, from the driers to the storage bins and from the bins to receiving hoppers over the bagging machines. Flow is controlled automatically through control panels located in the drier room and at the bagging machines. Other controls are also provided at the panels for automatic operation of components such as feeders,

blowers, conveyors and filter-receivers. Besides being easily installed and automatically controlled, the Fuller system reduces both the amount and the expense of handling. Additional savings are made possible by Airveyor's self-cleaning facility, which greatly reduces maintenance costs.

Why not work with Fuller to design an automated pneumatic materials handling system that will help you cut costs and increase production? Write today for complete details.

A-280
1355



FULLER COMPANY
164 Bridge St., Catasauqua, Pa.

SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
Birmingham • Chicago • Kansas City • Los Angeles • New York • San Francisco • Seattle

Circle 60 on Reader Service Card for more information

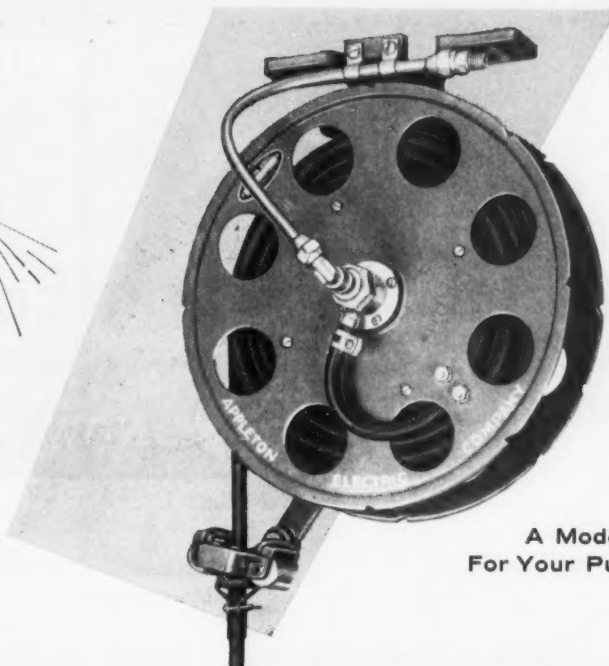


MATERIAL HANDLING ENGINEERING



No Tripping!
No Injuries!
No Down Time!

with

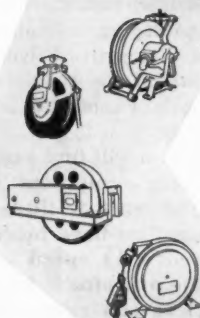


**A Model
 For Your Purpose**

APPLETON®

AIR-LIQUID REELS

Other
 Reelite Products



Eliminate Dangerous Hose Slack with APPLETON Reels

The hazards of tangled, twisted hose are completely eliminated when you install APPLETON Air-Liquid Reels. They automatically rewind to maintain constant tension on hose lines...yet give finger-tip supply from "out-of-the-way" source. Helps prevent costly employee injuries!

Investigate the advantages of APPLETON Air-Liquid Reels for your requirements...the finest for light or heavy duty work. A duplex model hose reel for oxygen and acetylene also available. All have universally designed roller outlet which provides continuous use of the hose without danger of pinching or tearing. If constant tension is not desired, reels can be equipped with a ratchet device which, with a slight tug on the hose line, allows it to rewind on the drum.

*For full information, write for
 Air-Liquid Reel Bulletin 259*



APPLETON ELECTRIC COMPANY

1701 Wellington Avenue

Chicago 13, Illinois



Material Handling Equipment

WHAT HAS HAPPENED to material handling equipment in ten years of AMHS existence?

It has grown more sophisticated and versatile. It has had to change to keep pace with the men who design the handling systems and specify equipment. As Arthur L. Lewis, president of Lewis-Shepard Products, put it: "Business and industry now knows exactly what it wants of its equipment. If the available equipment cannot do the predetermined job and produce the expected savings, companies will not invest. The situation is as simple as that."

"A major factor in this development has been the advent of the material handling supervisor in the plant. He is a relative newcomer to the business and the industrial scene. And in many instances he has been placed on a level with other managerial personnel."

The material handling engineer has not only demanded improvements in traditional handling equipment, but has also looked for new tools.

For example, industrial television has jumped from a \$100,000. a year business to \$15,000,000. a year in the last 10 years, reports Dage Television Div., Thompson Ramo Wooldridge Inc. In this time closed circuit TV has increased its scope and coverage while decreasing the size of its components. Equally important, the attitude towards closed circuit TV has changed. It is no longer thought of as a gimmick but as a means of supervisory control.

The same trend of expansion shows in the uses of industrial radio. A recent MHE survey found that respondents listed 83 different types of equipment on which they used radio. And they reported increasing their equipment's useful hours a day from 5.3 to 7.1.

Radio is an example of a device that has added to the refinement of the fork lift truck. Countless other attachments have made the industrial truck more versatile. And more widespread applications of power steering and braking, plus "human engineered" con-

trols and seats, have made the driver's work easier.

Conveyors have kept pace with new engineering developments. Speeds have doubled—yet the drives are smaller and the conveyors weigh less. You can get a wide range of variable speed drives. Improved bearing design makes the conveyors more efficient. Design is cleaner; better guards protect the operator. And the new style conveyors are easier to maintain.

Belting has improved along with conveyors. Today you can get a belt to handle any product, no matter how hot, sharp, or corrosive. Belts carry heavier loads, but are lighter themselves.

In packaging the biggest development over the past ten years has been plastics. This field is fast moving, with new applications and techniques cropping up constantly. Thermoformed plastic sheets, for example, are the basis of a whole series of packaging developments, including the blister pack. This package consists of a transparent shell that is mounted on a paperboard card. The product is mounted on the card and the plastic skin is stretched over it by vacuum. Containers molded from plastics are packaging innovations put on the market in the last few years. Polyurethane foam, either pre-formed to suit the contours of a product or foamed in place in a container, is being used to package delicate items.

On the following pages you will find examples of how material handling equipment of all kinds has changed over the years. In these products notice how (1) capacities have increased; (2) weight has decreased; (3) speed has increased; (4) strain on the operator is lessened; (5) maintenance is easier; (6) appearance is streamlined. Manufacturers have come a long way in offering to the material handling engineer the right tools he needs to do the job.

If you'd like more information on any of the products in this article, just circle its number on the Reader Service Card.

**Load Handling
is Easy—
Safe with
COFFING**

Quik Lift

ELECTRIC HOISTS



It's easy for the operator to raise or lower loads while pulling a trolley mounted Coffing Quik-Lift Electric Hoist. The design of the pistol-grip control station and the combination strain and power cable makes this possible. The light but strong aluminum housing provides ease of portability. Changing voltages, limit switch, type of suspension or chain is quick because the housing is in sections.

For Safety the control station is made of non-conducting plastic in which the voltage is reduced to 115 volts and the push-buttons are mechanically interlocked. The V-type brake which provides maximum braking surface and positive control of loads is another safety feature.

For Efficiency in load handling specify Coffing Quik-Lift. Twenty models—capacities range from 1/4 to 2 tons. Ask your distributor for details or write for Bulletin ADH-65.



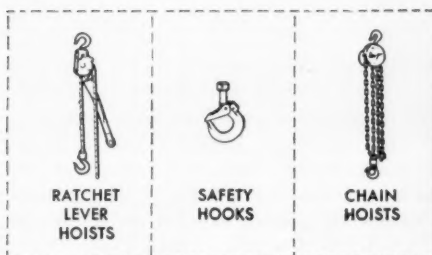
Pistol-Grip Push-Button Control

Lightweight Aluminum Housing

V-Type Brake for
Maximum Braking Surface

Easily Adjusted Limit Switch

Complete Line of Accessories



RATCHET
LEVER
HOISTS

SAFETY
HOOKS

CHAIN
HOISTS

COFFING HOIST

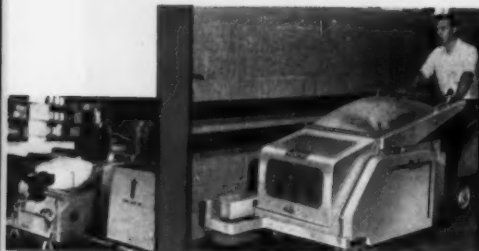
DIVISION OF
DUFF-NORTON COMPANY

821 Walter Street • Danville, Illinois

THEN

Material Handling Equipment

NOW

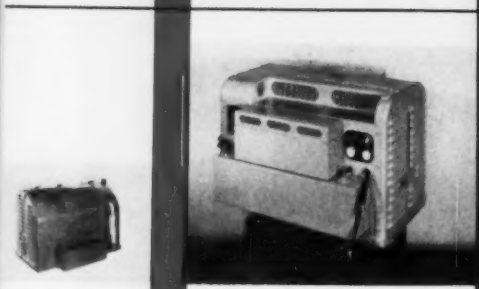


Power Sweeper

Clarke Floor Machine Co.

Units today are more compact, more streamlined in appearance, and improvements have increased sweeping capacity as well as performance. Features eliminate the major share of work, expense, and dust. The sweeper does the work of 20 men with handbrooms. A forward-stop-reverse handle bar provides fingertip control. Entire frame and chassis is heavy steel. Optional side broom sweeps close to walls and posts.

Circle 351 on Reader Service Card for more information

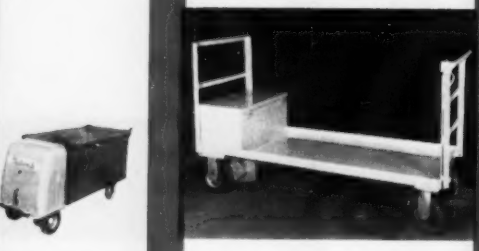


Power Unit

The Ready-Power Co.

Ten years ago, Model "H" was a general purpose gas-electric power package which provided live power for industrial trucks. It used a Continental four cylinder F162 engine, and produced a normal rating of 6 KW with a maximum of 12 KW. Today, Model HA5 produces an average rating of 9.6 kw with a maximum of 16 kw, a 50 percent increase. New housing is designed to accommodate the seat on the sitdown type truck.

Circle 352 on Reader Service Card for more information



Electric Flat Bed Truck

Dynex, Inc.

Original models were powered by a large Electromite unit riding forward of the truck or bin. Newly engineered models allow greater loading and transport space with the battery enclosed in a small compact case. The power mechanism is an integral part of one of the rigid casters on the vehicle. Fingertip buttons control forward or reverse speeds.

Circle 353 on Reader Service Card for more information



Industrial Doors

Clark Door Co.

The Presti-O-Matic model was in its early design and construction state 10 years ago. Construction then was basically the same as now. Today, motor operator and hardware construction are different. Drive mechanism consisted of a motor and a V-belt pulley geared to the drive chain. Doors today incorporate a solenoid brake, eliminating coasting and providing positive locking. Door opens on specially designed roller bearing hinges. Electrical equipment is mounted in a single control box.

Circle 354 on Reader Service Card for more information



Electric Lift Trucks

Lewis-Shepard Products, Inc.

The company's first electric lift truck was designed by A. L. Lewis, co-founder of Lewis-Shepard. It was a low lift electric pallet truck. Today, the company makes a variety of electric models, walkies, rider type, narrow aisle, etc. Capacities have been expanded, speeds increased, lifting height raised. Trucks are more maneuverable, safer, and easier to maintain. The new model shown has a crate handling attachment. This enables maximum use of air rights in warehousing of refrigerators and other cartoned goods.

Circle 355 on Reader Service Card for more information



Pallet Racks with Catwalk



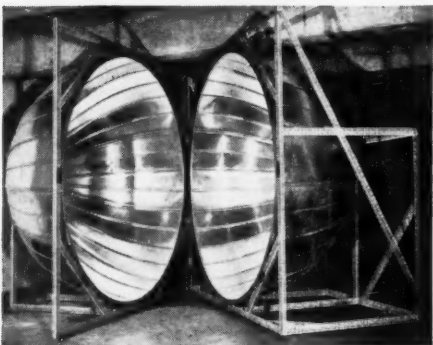
Automobile Display Rack



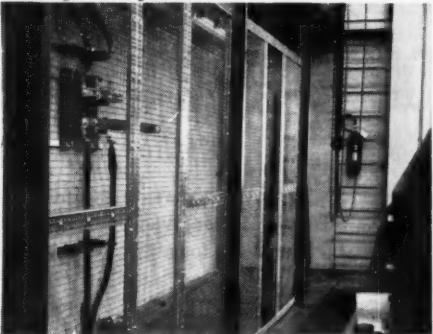
BUILD IT WITH **new**



slotted angle



Street Light Testing Device



Protective Barrier for Electrical Apparatus

The Only Framing Material That Gives You Lock-Joints, Friction-Joints, and $\frac{3}{8}$ " Structural Bolts

Whether you need a common storage frame or an unusual piece of equipment, you can build it faster and more economically with new AIM Brand Slotted Angle. This versatile framing material features a new slot-and-hole bolting pattern that simplifies the assembling of all kinds of durable structures and equipment.

Two bolts fastened through round holes form a Lock-Joint for maximum strength and rigidity. The structural design of mezzanine floors, bar stock racks, etc., permits use of this joint.

Two bolts fastened through slots form a Friction-Joint. This type of joint provides normal rigidity and is used when the structural design of such day-to-day jobs as tables, shelving, etc., permits. $\frac{3}{8}$ " diameter structural bolts, each with a safe-load capacity of 2000 pounds, are used for all connections.

Cold-rolled galvanized steel, AIM Brand Slotted Angle comes in two sizes: Standard 225-80 ($2\frac{1}{4}$ " x $1\frac{1}{2}$ " x .080") and Heavy-duty 300-104 (3 " x $1\frac{1}{2}$ " x .104"). Ten or twelve-foot lengths come in packages of 10 pieces with bolts and nuts.

New AIM Brand Slotted Angle is a product of Acme Steel Company, U. S. pioneers in slotted angle framing material. Available nationally through local distributors or write: Dept. MJD-59, Fabricated Materials Division, Acme Steel Company, 135th Street and Perry Avenue, Chicago 27, Illinois.



AIM Brand Slotted Angle



Circle 1 on Reader Service Card for more information

CONTINUING RESEARCH AND ENGINEERING for better materials handling at less cost



G-3 SERIES HIGH CAPACITY GASOLINE TRUCK!
300% more visibility than any similar truck.
Greater degree of stability. Lifting speed:
60' per minute—fast lowering speed, too.
Travel speed: up to 20 mph.
Capacities: 15,000 to 20,000 lbs.



First TRACTOR SHOVEL designed especially for industry! Does 25% more work per hour—10 hours' work in an 8-hour shift. Precisely controlled horsepower through matched torque converter and Yale fully automatic torque transmission. Safety-curve lifting mechanism. Carry capacity: 2500 lbs.

JUNE 1959: YALE GIVES MATERIALS HANDLING A LIFT INTO

In developing new concepts of the dimensions with which materials handling engineers must work, Yale is constantly striving to further the science of efficient materials handling—and bring to industry the means to better production, maintenance and distribution. You profit through Yale's advanced materials handling technology today with new dimensions in product design—in product application—in service.

See the new dimensions from Yale at Booths 1110, 1408 and 1603, Materials Handling Show, Cleveland, June 9 through 12.

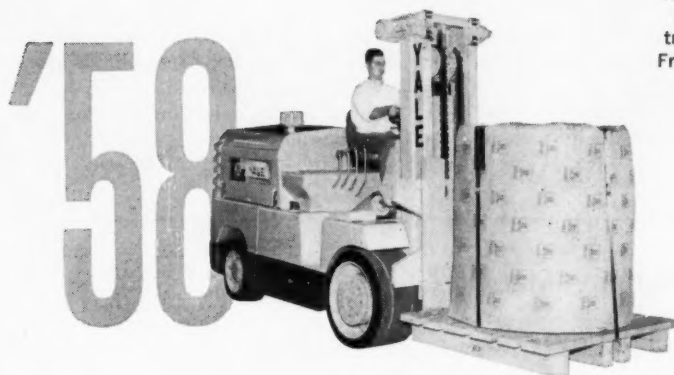
Yale Materials Handling Division, a division of The Yale & Towne Manufacturing Company. Manufacturing Plants: Philadelphia, Pa., San Leandro, Calif., Forrest City, Ark.



K410 SHORT ELECTRIC TRUCK for heavy industrial service! Combines heavy-industry capacity with a turning radius of only 92½". Accommodates 60- to 72-volt batteries. Excellent visibility. Boxcar maneuverability. Capacities: 12,000 to 20,000 lbs.



Yale's new WAREHOUSER! Easy to operate and maintain. 24-volt battery for faster lifting and travel. Simplified controls. Increased visibility. Frame, outriggers and mast are a single welded unit. In straddle and Extend-A-Load models. Capacities: 2,000, 3,000 and 4,000 lbs.



First compact, heavy-duty, cushion-tired GASOLINE TRUCK! Only series of its kind—features rugged design and compactness for fast cycle operations. Instant power from fully automatic torque converter transmission with 2 speed ranges. Capacities: 15,000 to 20,000 lbs.

THE FUTURE WITH NEW CONCEPTS IN DIMENSIONS

- NEW HANDLING CONCEPT for narrow aisle operation
- NEW GASOLINE TRUCK LINE
- NEW ELECTRIC TRUCK LINE
- NEW GAS TRACTOR LINE
- NEW COMPACT END-CONTROL ELECTRIC TRUCK LINE
- NEW ELECTRONIC CONCEPTS to speed service parts handling

Yale Materials Handling Division, Philadelphia 15, Pa.

YALE[®]

**INDUSTRIAL LIFT TRUCKS
TRACTOR SHOVELS • HOISTS**

YALE & TOWNE

Products: Gasoline, Electric, Diesel and LP-Gas Industrial Lift Trucks • Worksavers • Warehouseers • Hand Trucks • Industrial Tractor Shovels • Hand, Air and Electric Hoists
Circle 147 on Reader Service Card for more information

THEN

Material Handling Equipment

NOW

Ladders

The Ballymore Co.

Model 4-SH, produced 10 years ago, had straight sides with overall width of 18", and a depth of 37". Height was 52". Flaring was gained by rather awkward bend at rear supports. Design has been changed through the years to give a more safe, stable ladder, and one with better eye appeal. Width of the new P4-SH model is 20" at the base, and 17½" at the top. Flaring is both lateral and longitudinal. Greater strength is shown in the concave support at the back of the ladder. Instead of one cross support there are three. Spring mounted casters are set in two of them. All models from one to seven steps are spring mounted. Hand and guard rails are set up at a height of 24" compared to 18" in the old.

Circle 356 on Reader Service Card for more information

Parts Handling Containers

Wire & Iron Products Co.

A decade ago, baskets had straight up and down, or curved handles. This necessitated setting them side by side, a space consuming problem. They had to be individually handled when transferred. Today's Eezy-Stak baskets with "Inter-Lock" handles require minimum storage space. They are easily palletized for fast, efficient transfer.

Circle 357 on Reader Service Card for more information

Strapping Machine

Wiretyer Corp.

From a manual feed, manually operated unit to automatic strapping. Ten years ago, production speed was a maximum of 10 bundles a minute. Today, up to 25 cases (50 straps) per minute may be produced on a well engineered conveyor line.

Four models are now available for general purposes and for specific industries. They are engineered units with accessories designed for bundling of newspapers, single or "cross" strapping cases (nails, screws, etc.), magazines, and general items. A fully conveyORIZED model is available for automatic operation. Pneumatic and hydraulic powered units have replaced mechanical components, with compact manifolds and control centers. Improved types of strapping have been developed.

Circle 358 on Reader Service Card for more information

Electric Truck

The Raymond Corp.

Its narrow aisle electric truck was introduced in 1950, a development of the offset steering and drive wheel. It could make a 90-degree turn in a 6-foot wide aisle with forks carrying a 48" long load. Capacity was 2000 pounds. At the M. H. I. Exposition in June, Raymond will show its newest truck, a heavy duty 24 volt model. It is built to handle 4000 pound loads and will elevate at much higher speeds. It is designed to carry capacity loads up long ramps, over rough surfaces in or out of doors. A feature of the new model is direct drive dual wheels.

Circle 359 on Reader Service Card for more information



Photo Courtesy Milwaukee Gear Company

**FOR EVERY
APPLICATION,
THERE'S
ONE CRANE
OUTSTANDING...**

IN HEAT-TREATING: This 5-ton P&H crane with five-step speed control puts speedy material-handling under one man's thumb. From quench furnace to quench tank to tempering furnace, this low-cost standard-built unit provides dependable load movement — despite searing oil fumes, sudden blasts of heat from open fire-pots, and punishing high temperatures.

P&H units like this one are made with all the care and quality that go into any P&H crane, and because they are constructed from stock parts, you can have one on your runway for far less than you'd expect. What's more, every P&H crane is backed by a policy of undivided responsibility for all electrical and mechanical parts. This typical P&H service assurance is one reason why satisfied customers have made P&H the world's largest manufacturer of overhead cranes.

Write for your free, file-size copy of Bulletin C-6 "Industrial Cranes." Dept. 103, Harnischfeger Corp., Milwaukee 46, Wisconsin.



P&H

HARNISCHFEGER
...quality and service for 75 years

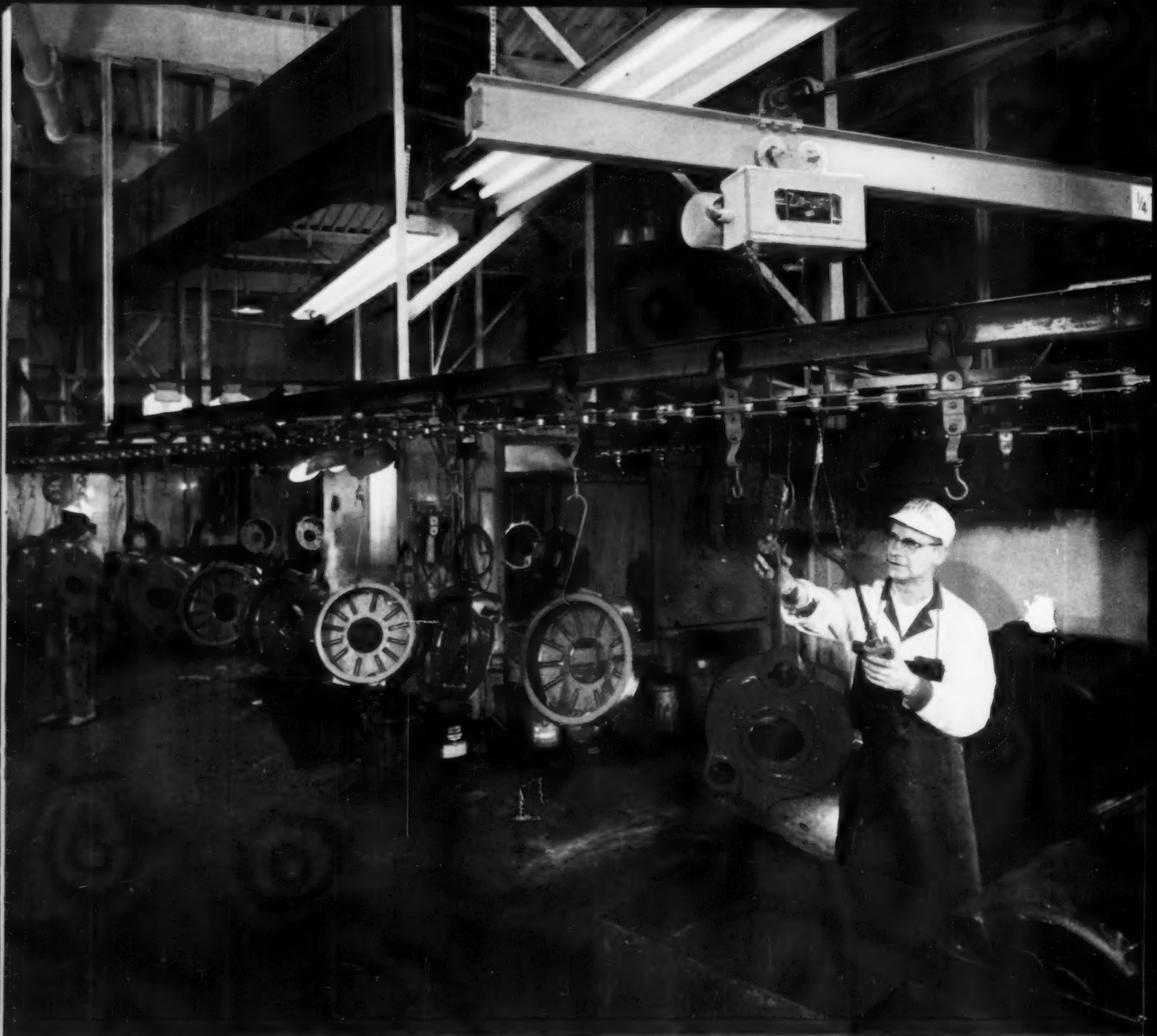


Photo Courtesy Wacho Mfg. Co.

**6000
ORDERS
A DAY
DON'T
TIRE
A ZIP-LIFT!**

An operator's thumb punches over 6000 commands a day into this production-line P&H Zip-Lift in a painting, coating, and tinning plant. The sturdy hoist responds promptly . . . never tires . . . and comes up asking for more.

The control pendant on a Zip-Lift operates on a safe 24-volt circuit — typical of the many safety features P&H builds into this low cost unit. There are two brakes, either of which will hold a capacity load even if power fails . . . shrouded load-block to protect workers hands . . . limit switches that guard against equipment abuse . . . and many more features that make P&H Zip-Lift hoists extra-safe and extra-dependable.

Are you guarding your personnel and your production with P&H Zip-Lifts . . . or are you going to start with your very next hoist purchase? Bulletin H20 will help you plan that purchase. It's free from Dept. 202, Harnischfeger Corp., Milwaukee 46, Wisconsin.

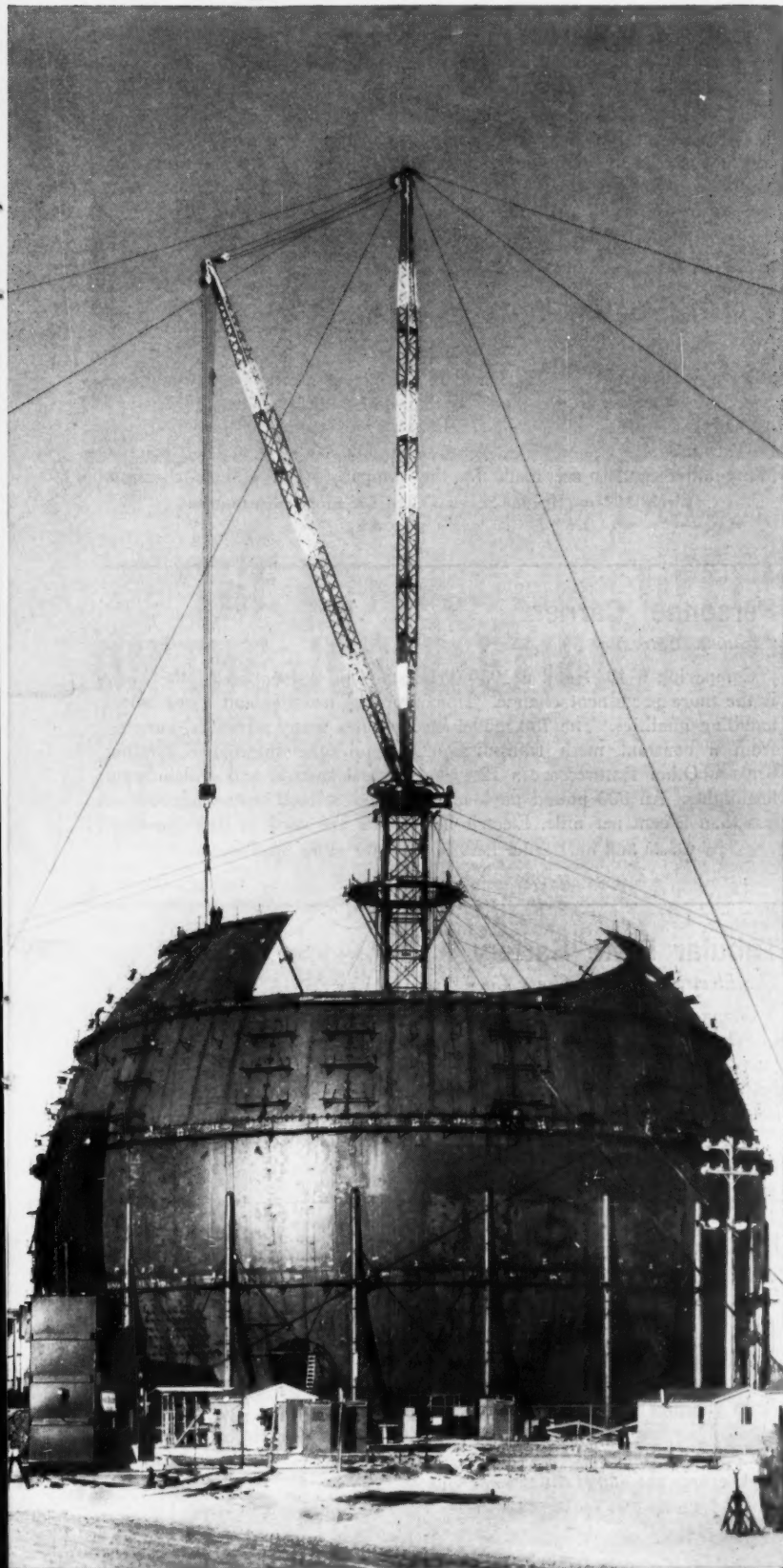


P&H

HARNISCHFEGER

...quality and service for 75 years

Tiger Brand — America's No. 1 Wire Rope



It takes a heap of hoisting to make a nuclear sphere

This 190-foot hortonisphere at Dresden, Illinois, will house the country's largest nuclear power reactor. The walls were made from 1.4 inch steel plates and they weigh 3,500 tons.

The builders, Chicago Bridge and Iron Company, used 97,900 feet of wire rope in the guy lines and hoists that lifted the massive steel plates into place. The wire rope was Tiger Brand—America's No. 1 Wire Rope.

Tiger Brand hoisting ropes are unsurpassed for strength and dependability. They are designed for maximum flexibility, too, so they resist the fatigue caused by bending around sheaves and drums. There is a complete range of Tiger Brand hoisting ropes in the sizes and strength requirements that are best for every job.

If you lift anything with wire rope, are you sure you've got the *right* rope for the job?

Why Tiger Brand is your best buy

1. It is made by a company that maintains the most complete wire rope research and manufacturing facilities in the country.
2. It is designed by one of the country's largest staff of wire rope engineers. It is serviced by field representatives always ready with their assistance.
3. Every type of Tiger Brand Wire Rope is designed for specific applications. You get the *right* rope for the job.
4. It is made by one company, U. S. Steel, and every step of production, from ore to finished product, is carefully controlled and supervised to guarantee one high standard of quality.
5. Tiger Brand Wire Rope is manufactured by the largest single producer in the country.

Consult the Tiger Brand representative near you, or write American Steel & Wire, Dept. 906, 614 Superior Avenue, N. W., Cleveland 13, Ohio.

USS and Tiger Brand are registered trademarks

American Steel & Wire Division of United States Steel



Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

Circle 154 on Reader Service Card for more information

THEN

Material Handling Equipment

NOW

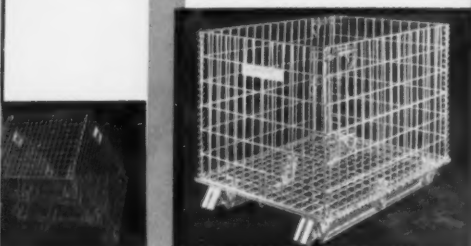


Plastic Containers

Hollywood Plastics, Inc.

Moduboxes are made of a combination of rubber and plastic polymer. They will not crack, break, chip, or flake. There are no pores; they are easy to clean. Many sizes are designed so that the box has serrations on all four sides. Masonite or plastic dividers can be inserted to divide boxes in halves, quarters, etc. Box can be used for rough part handling or for protection of precision parts.

Circle 360 on Reader Service Card for more information



Collapsible Pallet Boxes

Tri-State Engineering Co.

First wire mesh container had all wire construction, including legs and base structure. It weighed less than 100 pounds, had a 2000 pound capacity. In the late '40's hot rolled, strip legs were substituted. Latest Lo-Tare model weighs only 82 pounds, handles loads up to 1000 pounds. Many other models are made by the company's Cargotainer Division.

Circle 361 on Reader Service Card for more information

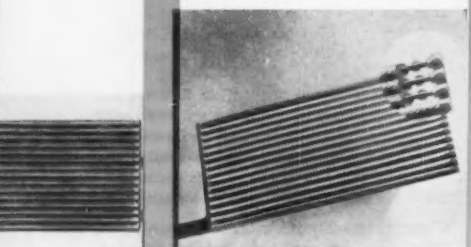


Personnel Carrier

Cushman Motors

Comparing a 1949 and a 1959 Truckster, the re-location of the body is the more prominent change. This improves traction and gives better handling qualities. The 780 model incorporates many advances, ranging from a constant mesh transmission to hydraulic internal expanding brakes. Other features are a 12 volt electrical system, and sealed beam headlights. An 800 pound payload is carried at total operating cost of less than a cent per mile. Electric Trucksters are used in light hauling.

Circle 362 on Reader Service Card for more information

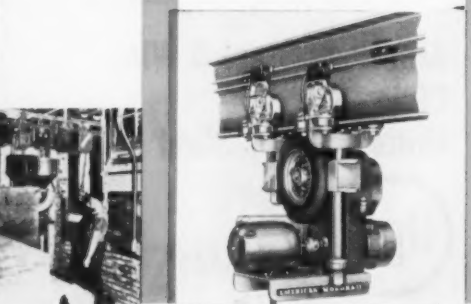


Tubular Plate Battery

The Electric Storage Battery Co.

Changes in the Ironclad battery made by the Exide Industrial Division of this company have increased capacity per cubic inch by 45 percent. Ten years ago, the positive plate was made of hard rubber tubes, and alloy bottom bar. Today, the plate is made of armored porous glass tubing. It holds more active material, and holds it longer, allowing freer passage.

Circle 363 on Reader Service Card for more information



Monorail

American MonoRail Co.

Old unit featured the basic principal of making contact between rubber and steel along bottom of a truck as is used today. It had pneumatic tires. When operators built up air pressure in them, contact was better. A gear-head type motor was used. Today, monotractors utilize duty-rated helical gears running in oil with gearing changes suitable for any reasonable speed. They can be equipped with fluid drive and magnetic braking. Tires are zero-centered solid rubber. Various type controls, speeds, and loading applications are added differences today.

Circle 364 on Reader Service Card for more information

AUTOMATIC



Power on grades—the Dynamotive can start and stop with full load on 28% ramp.

To Serve Your Changing Needs

THE DYNAMOTIVE OFFERS MAXIMUM ON-THE-JOB FLEXIBILITY AT LOWEST COST!

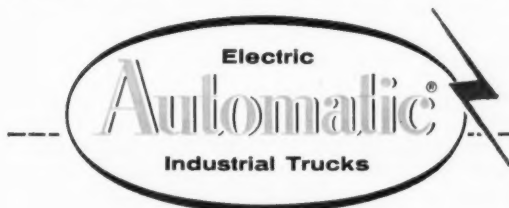
The Dynamotive gives you power *plus!* Power you can use on the job—in the plant or out in the yard. The secret is in the synchronized power package. The gas engine and variable-voltage generator are precisely matched to supply *instant* power to the electric-drive motor.

There is no clutch, no hydraulic torque converter. Slippage and power loss resulting in heat build-up are eliminated. Stresses on the engine are greatly reduced. Yet there is more than three times higher torque output at the wheels than with conventional torque converters.

The Dynamotive is engineered for safety. Driver's seat is easily accessible from either side. Operator has high visibility in all directions.

The Dynamotive is remarkably flexible, amazingly economical to operate! There's less maintenance, less down time, due to the simplicity of its power plant. It is the answer to your constantly changing materials handling problems. Available with cushion tires in 4,000 to 10,000 lb. capacities; with pneumatic tires in 4,000 to 6,000 lb. capacities. *Convenient lease or purchase plans.* Send coupon for detailed booklet.

Advanced Materials Handling at Less Cost to You

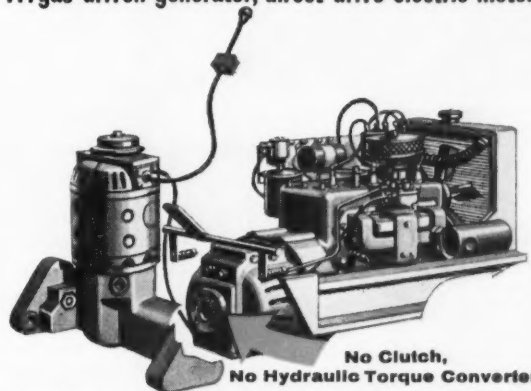


**AUTOMATIC
TRANSPORTATION COMPANY**

Division of The Yale & Towne Manufacturing Company
141 West 87th Street, Dept. E-9, Chicago 20, Illinois

WORLD'S LARGEST EXCLUSIVE BUILDER OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

DYNAMOTIVE'S SYNCHRONIZED POWER PACKAGE
...gas-driven generator, direct-drive electric motor



ONLY THE DYNAMOTIVE OFFERS ALL THESE ADVANTAGES:

- ★ **GAS SAVINGS UP TO 30%** because engine operates at most efficient speed all the time.
- ★ **GREATLY INCREASED TORQUE OUTPUT;** permits engine torque to be multiplied 8 (or more) times when needed.
- ★ **TRUE INCHING CONTROL** provided by varying generator output; operates truck at low speed while load is raised.
- ★ **SUPERIOR LIFTING SPEED.** Example: lifts 4000-lb. load at rate of 75 F.P.M.

- ☐ Please send complete information on the Automatic Dynamotive.
☐ Explain convenient plans for lease or purchase of Automatic Industrial Trucks

Name _____ Title _____

Firm Name _____

Address _____

City & Zone _____ State _____

Circle 16 on Reader Service Card for more information

MAY, 1959

43

THEN

Material Handling Equipment

NOW



Tractor Crane

Drott Mfg. Corp.

New "Go-Devil" tractor crane is designed to provide versatility for both plant and yard work, and to supplement existing material handling equipment. The boom swings a full 360 degrees; rotates continuously at a speed up to 3 rpm. It can be extended hydraulically, retracted, or raised to an angle of 75 degrees. Two hydraulic control levers permit the operator to perform any of these various operations simultaneously. The line includes 2000, 5000, and 10,000 pound capacity.

Circle 365 on Reader Service Card for more information



Fork Trucks

Baker Industrial Trucks

Old JO-20 is shown handling aircraft engines. Ten year advances are shown in the FTD-020, with series "C" side shifter. In the old model, the driver had to get off and on the truck on the right side only. New model has comfortable seating arrangement.

Circle 366 on Reader Service Card for more information

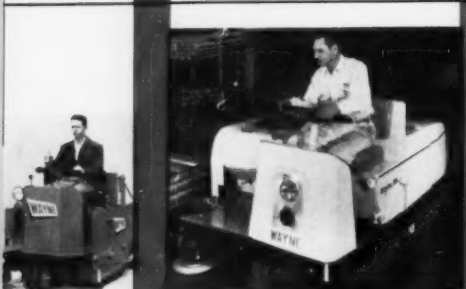


Portable Storage System

The Paltier Corp.

First installation was in 1949. It had specially designed all-wood base, male (tiering) cone assembly, lock nut and washer, tiering post, and receiving cone assembly. Through the years changes in design and engineering features resulted in lower freight cost, easier handling, better, longer lasting system. Steel frame bases are now available with wood, steel or wire mesh decking. Can be used as shipping unit or container.

Circle 367 on Reader Service Card for more information



Power Sweepers

Wayne Manufacturing Co.

A re-design program improved sales and production over 300 percent. Original product as shown was satisfactory. But the company wanted a more mechanically efficient unit with a more modern look. Today's model has a larger refuse hopper configuration with greater filter capacity and a diverting mechanism. Together they eliminate the need for frequent periodic dust removal. Other features are designed automotive type steering, and maneuverability for close-to-wall work.

Circle 423 on Reader Service Card for more information



Barrel Truck

Nutting Truck & Caster Co.

Adjustable chime hook in new model replaces old hoop, giving easier operation. Retractable running gear makes loading and unloading easier and safer as it always remains on the floor. This eliminates lifting of dead weight.

Truck stands alone, empty or loaded. Model has heavy duty, roller bearing demountable rubber tired wheels. For automatic loading, operator engages chime hook, pulls truck backwards. The toes slide under the barrel, running gear retracts, and the barrel is securely cradled.

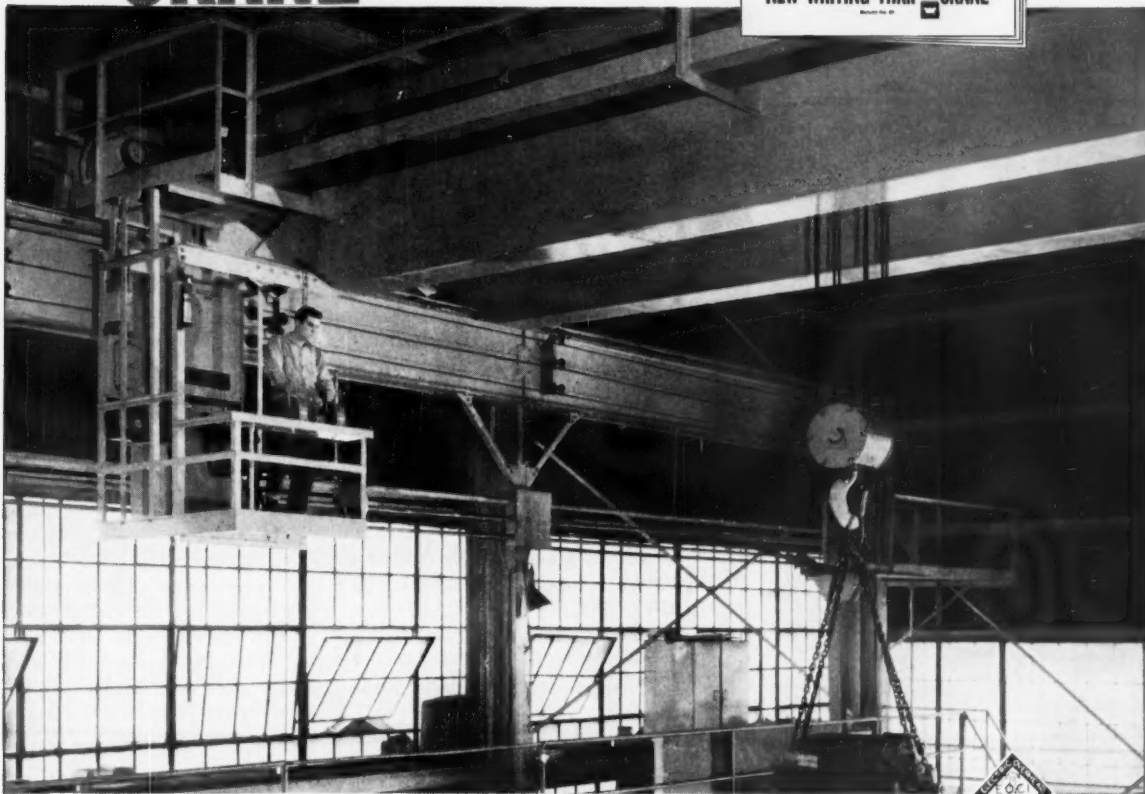
Circle 369 on Reader Service Card for more information

NEW THRIF-T CRANE

SEND FOR NEW BOOKLET
Bulletin 91 giving detailed information.

Keep
your
capital
investment
down

with the
NEW WHITING THRIF-T CRANE



An Answer to Plant Modernization

Whiting's new Thrif-T Crane is slated to spark a trend in plant modernization. It's a husky crane. It has plenty of stamina to do big jobs with the speed demanded by today's production schedules and cost levels. *Yet, it costs much less than you'd expect!* Pre-

engineering, mass-produced parts...and a host of exciting new design developments enable new Thrif-T Crane to provide big-crane performance at small-crane cost. *Whiting Corporation, 15620 Lathrop Avenue, Harvey, Illinois.*

87 OF AMERICA'S "FIRST HUNDRED" CORPORATIONS ARE WHITING CUSTOMERS

WHITING

75th year



MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; TRACKMOBILES; FOUNDRY, RAILROAD, AND CHEMICAL PROCESSING EQUIPMENT.

Circle 172 on Reader Service Card for more information

MAY, 1959

THEN

Material Handling Equipment

NOW

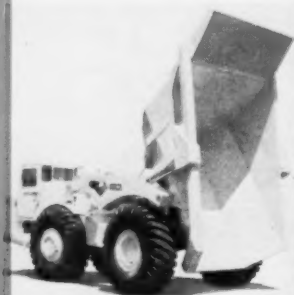


Industrial Tires

The Monarch Rubber Co.

New rubber compounds, production methods, and tread designs are used in today's "Mono-Cushion" tires. More rubber is used, the tire is heavier. Special all crude rubber formula gives resistance to abrasion, cutting, chipping and rim separations. Old tire was made from a one-piece extruded tread stock. Present has many laminated plys for extra strength and cushioning. Old rims were serrated on tread side to provide more bonding surface. New rubber-to-metal chemical bonding and production techniques have eliminated the need (and extra cost) for serrated rims. Current rims are smooth.

Circle 370 on Reader Service Card for more information



Side-dump Trailers

Easton Car & Construction Co.

First pneumatic-tired semi-trailer used in quarry shuttle service (1937) is shown in old picture. It featured the doorless pan-type side-dump body. Significant development was the design for push-button controlled automatic, electric overhead dumping system. It is now essential part of any pan-type side-dump truck or trailer. Early designs used the I-beam body and floor reinforcements and riveted construction. Welding replaced riveting in all structural work in the 40's. Newly introduced is the variable wheel base rear-dump trailer.

Circle 371 on Reader Service Card for more information

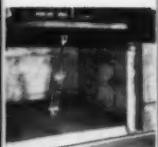


Bucket Loaders

Butler Bin Co.

In old GA model, bucket discharge was by a mechanical latch. It had to be carried quite high in order to keep contents from spilling. Today, in Model 203, the bucket is hydraulically controlled by a two-spindle valve with one operating handle. Designed for tight operating areas, the "Carscoop" has forward speed of 4 mph. There are no gears to shift.

Circle 372 on Reader Service Card for more information

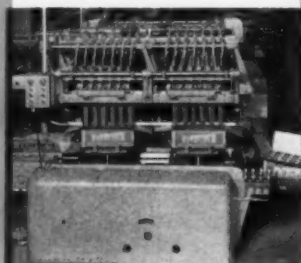


Dock Ramp

Beacon Machinery, Inc.

First ramp was a very simple, reinforced deck raised and lowered by an air cylinder. To simplify installation and give full capacity in any position, the packaged hydraulic ramp was developed. To eliminate damage to trucks and ramp lip, the extending-retracting ramp was designed. Latest model, the spring-counter-balanced mechanical ramp is completely automatic.

Circle 373 on Reader Service Card for more information



Bottle And Can Packer

Emhart Manufacturing Co.

New Standard-Knapp Model 860 takes up 27 percent less space than old unit, but it provides 40 percent more capacity. It differs radically in appearance. Open construction of the old 830 model has given way to a new body style. It is easier to clean, safer to operate, has a better looking appearance. Automatic case feed is now standard equipment. But semi-automatic case feeding can be employed.

Circle 374 on Reader Service Card for more information

THEN

Material Handling Equipment

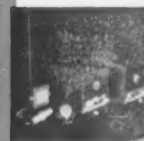
NOW

Two-Way Radio

General Electric Co.

Equipment for use by business firms and industry is now packaged in a single case. Ten years ago, the transmitter was contained in one cabinet, and the receiver in another. Now the control head fits on front the cabinet for those who desire to mount units under the dashboard of trucks or car. Transistors make possible new reliability.

Circle 375 on Reader Service Card for more information



Fork Lift Truck

Allis-Chalmers Mfg. Co.

Allis-Chalmers Material Handling Division and former Buda Co. entered the fork lift truck picture with purchase of the industrial tractor firm the latter part of 1949. Officially, it introduced its line of FT series—fork lift trucks—starting in October, 1950, completely engineered from the ground up. Today, over 90 models are made to fit nearly all material handling requirements. They range from 2000 to 10,000 pounds.

Circle 376 on Reader Service Card for more information



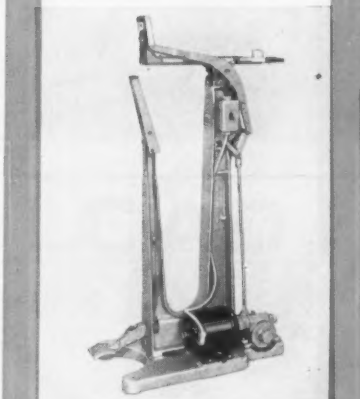
Wire Stitchers

Bostitch

First model was the EHB, a stapler with a 20 inch bottoming post. It was limited to small and lightweight boxes. Need for heavier bottom staplers resulted in Model F bottom stapler with a heavy 34 inch post and cast iron frame. Post was pivoted to permit easy insertion and withdrawal of the box under the stapling head.

Later the post was improved by making it an integral part of the frame casting and adding a swinging section at the top. Model F94 bottomer, the next improvement, used staples of .090 x .040 wire and having a staple crown 1½ inches wide, compared to a crown width of 15/32 inch in previous models. Most recent improvement is the FC95C or "Golden Belt" model. It loads with a coil of 4000 partially preformed staples, reducing time required for reloading.

Circle 377 on Reader Service Card for more information



Coil-Handling Conveyors

Mathews Conveyor Co.

Old picture shows coil-handling conveyors 20 years ago. Then, the coils shown were considered heavy, and equipment shown was thought to be massive. Today, coils weighing about 60,000 pounds are handled. Heavy chain conveyor has taken place of the old roller conveyor lines. As steel sheets are required in greater widths today, the coils necessarily became larger, equipment had to be designed for heavier handling.

Circle 378 on Reader Service Card for more information

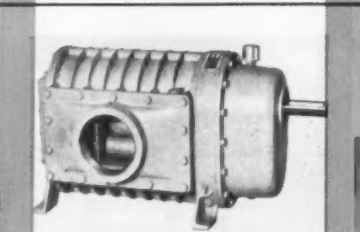


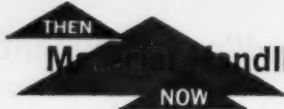
Blowers

M-D Blowers, Inc.

Company redesigned high pressure blowers for general industrial use. Its 3 lobe rotor design lets smaller units run at higher speeds. Speed range has been increased 50 percent. Blower housings are stronger and give more heat radiation. End plates permit better lubrication.

Circle 379 on Reader Service Card for more information





Electric Hoist

Manning, Maxwell & Moore, Inc.

The Shaw-Box Crane & Hoist Division of this company builds a modern, heavy duty, wire rope and drum type electric hoist. Known as the "Load-Lifter" series "700" they are geared to today's mass production trend. Old picture is a 1951 model for comparison. Two-gear reduction drive has been retained since the line was first introduced in 1907. It has been refined and improved. Models today are exceptionally lightweight, without loss of strength. They are compact, permitting extremely high hook lift. Servicing can be "in-the-air" by simply opening access doors or removing end covers. Ball bearings are featured throughout.

Circle 380 on Reader Service Card for more information

Lift Trucks

Hyster Co.

Last decade brought significant improvements. Increased operator productivity, better performance and lower maintenance costs have resulted. Technical improvements are highlighted by the recently announced Monotrol. This combines throttle and direction control in a single pedal. Teamed with the Hystamatic transmission, Monotrol leaves the operator's hands free for the steering wheel and hydraulic controls. Today, turning radius has been decreased 15 percent; engine torque has been increased 83 percent; lift speed under load has been increased 50 percent.

Circle 381 on Reader Service Card for more information

Appliance Trucks

Stevens Appliance Truck Co.

The wooden truck, Model W-2-S, was manufactured 10 years ago. Compared with the Model MRT, today's manufacture, many advances can be seen. Present model is constructed of magnesium. It has roller bearing crawler tread for going up and down stairways. There is a ratchet device for tightening the web strap around the appliance and an automatic strap recoil device which winds the strap into a compact form when disengaged from the appliance.

The new model weighs 35 pounds against 47 pounds for the wooden model. It is much stronger and has rubber and felt padding.

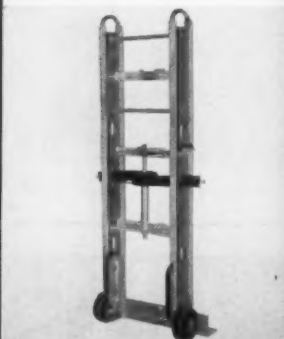
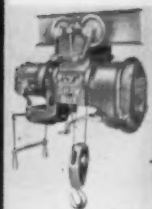
Circle 382 on Reader Service Card for more information

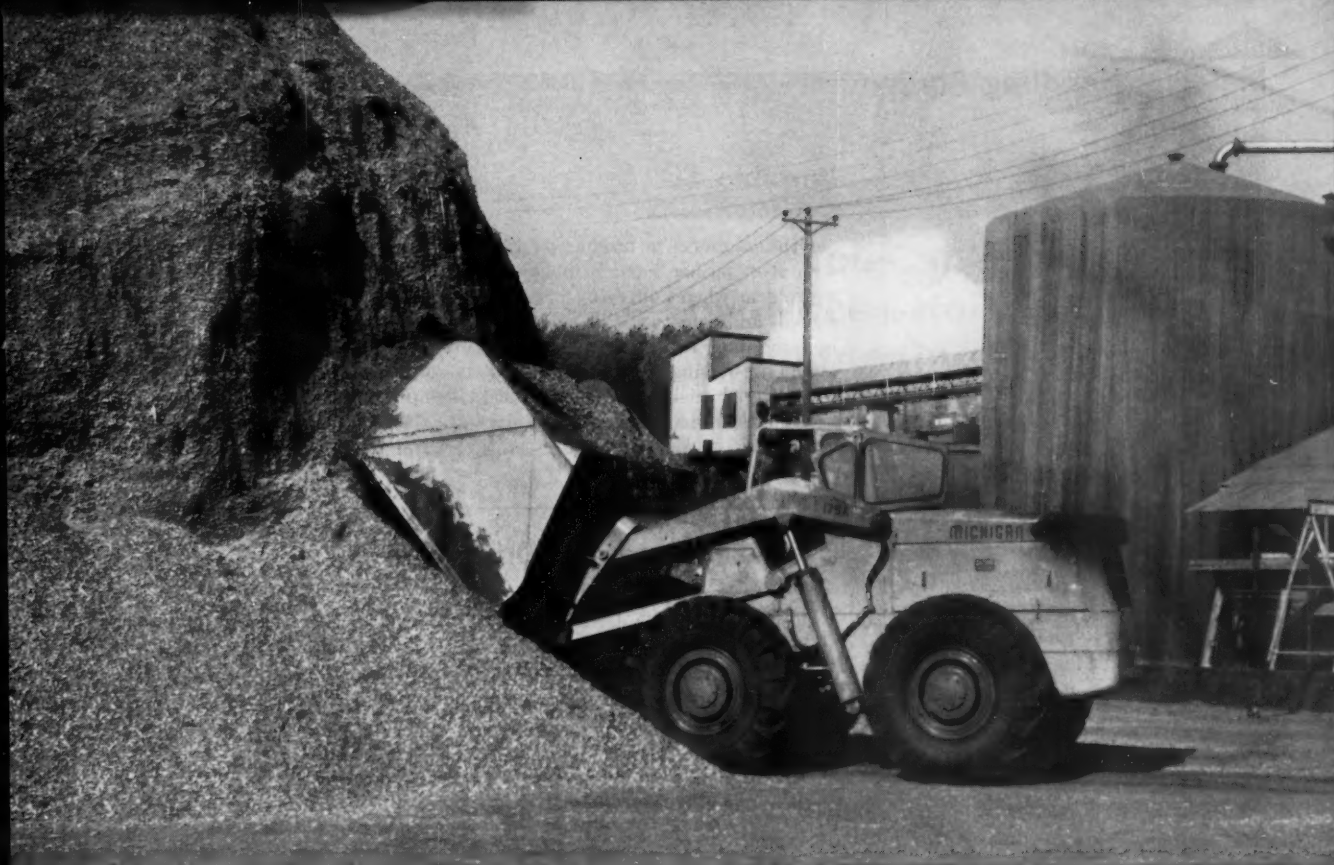
Accumulator

Greer Hydraulics, Inc.

The Greerolator is a specially designed hydro-pneumatic shock absorber for use on lift trucks, bucket loaders, tractors, etc. First designed in the 1930's. A flat diaphragm separated oil, hydraulic fluid, and air. Early models were used on aircraft. In 1940, an accumulator containing a balloon-shaped bladder was invented. By 1943, industrial applications mounted. In 1952, Greer used its standard hydro pneumatic accumulator to assist in eliminating load shocks on lift trucks. In 1955, company made a modified standard accumulator designed and tested specifically for the lift truck and front end loader industry.

Circle 383 on Reader Service Card for more information





500 cu ft PER LOAD

*of light, bulky material handled by Michigan Tractor Shovel
for Longview Fibre Company, Longview, Washington*

Tons of tiny, cork-like wood chips pour from conveyors onto huge stockpiles at this southwestern Washington pulp-producing plant. By rail and truck they come, as much as 68,000 tons per month. This light, bulky material must be moved into the mill quickly, cheaply, reliably. But why should a job like this be tough?

Wood chips matted, hard-to-handle

Despite light weight and corky appearance, wood chips are difficult to load. They're often wet and heavy . . . almost always interlocked to form a tight, impenetrable mat. Sometimes they pack so tightly a man can't drive a pitchfork into the pile. Moreover, chips are not free-flowing like sand, dry chemicals, or dirt. Every bucket-load must be *pried out* of this dense mass.

Fit Michigan with special bucket

In exhaustive tests, Longview found that a Michigan Tractor Shovel (Model 175A),

with its "all-level" breakout action, could come up with a heaping bucket on every pass. But the Michigan's 2¾ yard bucket was too small for this high-volume operation. So Longview's expert mechanics went to work, fabricated a huge 11 cu yard bucket and tried it on the powerful tractor shovel. It worked perfectly!

Completes 1200 ft cycle in under 2 minutes

While Longview's bucket is *rated* at 300 cu feet, level measure, most loads heap to an average of 500 cu feet per pass, according to R. E. Strommer, Assistant Pulp Mill Superintendent. Time and load studies reveal the Michigan moves *over four tons* of wet chips on each trip from stockpile to grizzly, a one-way distance of some 600 feet. Cycle time averages only 1.86 minutes . . . output averages 133 wet tons per hour!

What's your weight-bulk problem?

Whether you handle light material like

wood chips (20 lbs per cu ft) . . . or heavy stuff like ferro-manganese (200 lbs per cu ft) . . . chances are there's a Michigan Tractor Shovel that'll do it faster, cheaper, more reliably than any other way. If you'd like proof, your local Michigan Distributor will be glad to demonstrate—and *you* pick the job! Choose the size best suited to your job . . . eight basic models, 80 buckets, forks and attachments. A post-card will bring detailed specifications.

Michigan is a registered trademark of
CLARK EQUIPMENT COMPANY
Construction Machinery Division
2445 Pipestone Road
Benton Harbor 14, Michigan

In Canada: Canadian Clark, Ltd.
St. Thomas, Ontario

**CLARK®
EQUIPMENT**

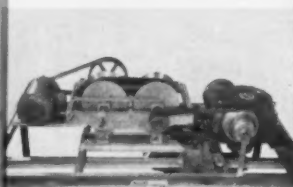


Portable Stacker

Hytrol Conveyor Co., Inc.

Original model in production 10 years ago used steel detachable chain with steel pusher bars. Although a less expensive model, chain created a problem when conveying bags due to its sharp edges. Company redesigned, and came up with ruff-top belt conveyor model B. Main feature is its portable folding. Protected corners now eliminate product damage. Hydraulic raising mechanism has safety stop. Other features are optional self-powered raising device, concealed take-up units, and improved bearing design. Breathing hinge prevents damage to the ruff-top belt.

Circle 384 on Reader Service Card for more information

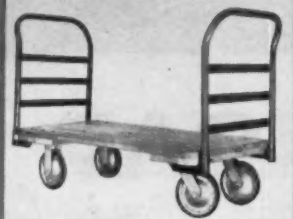


Overhead Conveyor Drive

Anchor Steel & Conveyor Co.

Overhead conveyor drive of ten years ago was large and heavy. Large diameter reduction gears were exposed. Overall structure was complex; maintenance was difficult. Today, different gear reductions in the gear reducer unit are easily made by changing helical gears.

Circle 385 on Reader Service Card for more information



Floor Truck

Lansing Co.

Ezy-Running truck, redesigned, has radiused corners. Decks are heavier. Pockets, while permanent, have set screws. This permits operator to remove, or make the racks permanent. Racks are of pipe, eliminating sharp corners. New demountable rubber wheels have adjustable ball bearing hubs. Cadmium plated bolts and axles are used in running gear.

Circle 386 on Reader Service Card for more information

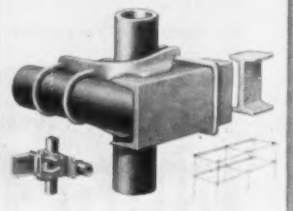
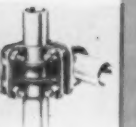


Tape

Labelon Tape Co., Inc.

"Write-on-it" tape developed in 1949 had a limited number of widths and sizes. Line now has seven sizes in four colors. Small rolls first were only 150 inches, later standardized to 400 and 800 inches for industrial purposes. Tape was laminated to acetate backing sheets for use in typewriters. Another development was pre-cut style for easy insertion in label holders. It is also being adapted for use as index tabs for copy folders or files. New development covers label with "Mylar" giving protection against high and low temperatures. Labels will not smudge.

Circle 387 on Reader Service Card for more information



Storage Racks

Tube-Strut Corp.

Tube-Strut clamps were first introduced. Later, the company developed the Beam-Strut clamp. Now they permit construction of double and triple bay racks with capacities up to 20,000 pounds. Both permit rack construction at reasonable cost. Ordinary pipe is used for both uprights and crosspieces of a storage rack, together with standard channel or I-beams for the bearing members.

Circle 388 on Reader Service Card for more information



You Can't Buy a Low-Priced Hoist with the Outstanding Performance and Maintenance Features You Get as Standard Equipment from Wright

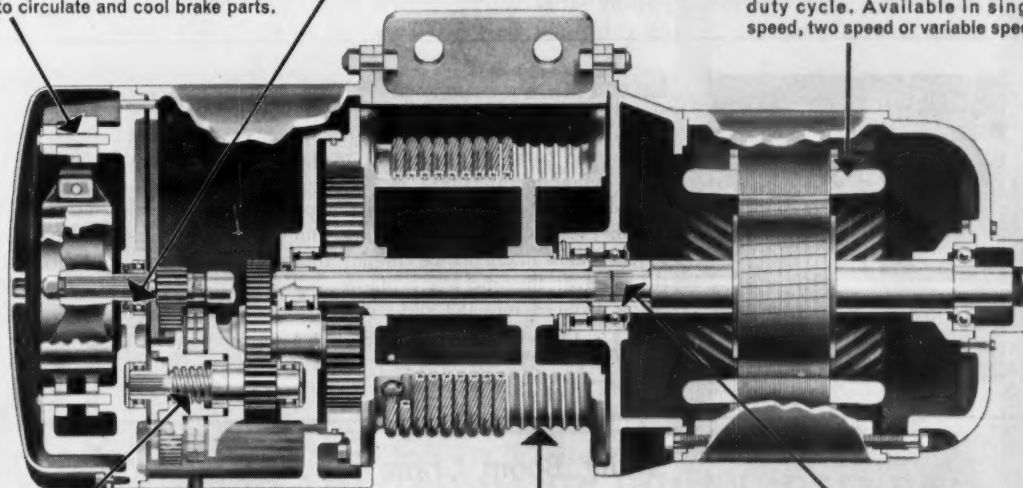
Feature for feature, you are years ahead with a **WRIGHT Speedway Electric Hoist**. Designed and manufactured to meet the varied demands of modern high speed production, *Speedway Hoists* give you the safety, adaptability, ruggedness and efficiency which you can't get in a low-priced hoist. Many of

these performance and maintenance features are exclusive with **WRIGHT**. So if you are considering the purchase of an electric hoist, it will pay you to investigate the advantages of **WRIGHT Speedway Hoists**. For complete information, write our York, Pa., headquarters for **Catalog E-58**.

Motor Brake is the solenoid-operated external expanding jaw type. Fan-shaped brake wheel induces air to circulate and cool brake parts.

Bearings • Precision ball or roller bearings support all moving shafts—insure high efficiency, durability and low maintenance.

Motors are fully enclosed, ball bearing type. Built to NEMA Specifications. Rated on basis of 30-minute duty cycle. Available in single speed, two speed or variable speed.



Mechanical Brake is of the Weston multiple disc type operating in bath of oil. Brake linings cemented to braking members instead of being riveted, thus increasing braking area for greater duty cycle.

Grooved Cable Drum is fabricated from rolled steel sections, machine-grooved to take full lift without overwinding. Extra wraps give added safety when hook is in lowest position.

Splined Connections transmit torques with minimum stress and distortion. Permits motor replacement with less effort even when hoist is under load.

WRIGHT HOISTS

Wright Hoist Division • American Chain & Cable Company, Inc.

York, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

Circle 6 on Reader Service Card for more information

ACCO



THEN

Material Handling Equipment

NOW

Marking Machine

H. C. Sweet Co.

The Florline marking machine was developed to facilitate material handling and safety in plants, terminals, docks, and airports, and for line marking on streets, parking lots. Today, a roller has replaced the brush to do the painting job. New design allows paint to feed directly onto the roller through multiple brass valves. Early models had a single nozzle from which paint flowed ahead of brush. Present machine rolls line up to half inch from any barrier. This eliminates hand painting to finish a line. Older machine stopped 6 inches short of wall or curb. Rear wheels were added to carry full weight load, make operation easier. Wheel line guide is a feature.

Circle 389 on Reader Service Card for more information

Air Hoist

Detroit Hoist & Machine Co.

Old type P air hoist was fitted with a 2-cylinder oscillating motor. Design covered use of malleable frame and parts.

Today's latest model 520, the Detroiter pneumatic hoist, is a compact, self-contained unit. Smooth hoist operation is assured by a type PT sliding vane, rotary air motor. Continuous, pulseless air delivery is possible because pistons and reciprocating parts have been eliminated. Brake is of simple design, easy to adjust, and is very accessible for maintenance.

Circle 390 on Reader Service Card for more information

Lift Truck

Revolvator Co.

Powered fork lift trucks for operation in explosion hazardous areas were being manufactured by this company 10 years ago. But models lacked style appeal. Drive and pump motors were inclosed as required. But they gave cluttered appearance, and maintenance was awkward. Latest model makes maintenance simple; appearance is improved. A deck across the level of the operator's platform guard prevents small objects from being dropped into the anti-kickback steering gear train.

Circle 391 on Reader Service Card for more information

Swing Boom Crane

Silent Hoist & Crane Co., Inc.

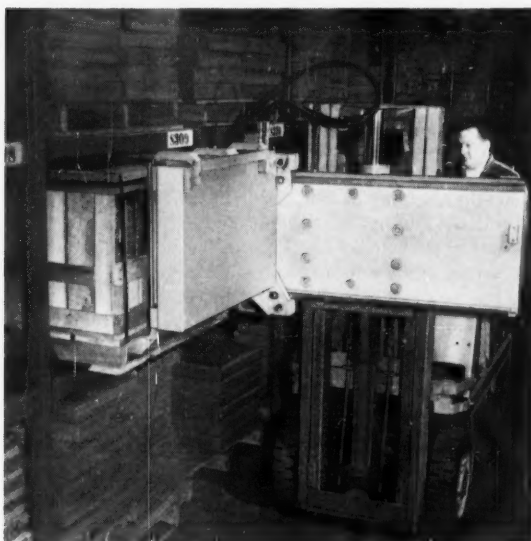
Earlier Krane Kar had mechanical operation, solid rubber tires, unstreamlined design.

Current model has all hydraulic operation, streamlined design, and has pneumatic rubber tires. The tires help reduce road shocks to machine and hook loads; permit easy transit.

High maneuverability and boom flexibility help the operator pick up, transport, and place full-rated loads in spite of low clearance doors, narrow aisles, tight working quarters. Krane Kar is available in 1½, 2½, 5, 10, and 12½ ton capacities. Larger sizes are made to order.

Circle 392 on Reader Service Card for more information

For Business and Industry . . .



*Save Time
and Save Space*
with **STOW***

- ★ Increases Storage Capacity up to 60%
- ★ Cuts Aisle Space 1/3 to 1/2 and More
- ★ More Efficient Use of Manpower and Lift Trucks

What is the STOW System . . .

The STOW Selective Storage rack system cuts unprofitable aisle space up to 60% and more by eliminating the 90° turn. The STOW System employs a positive action side transferring attachment which fits all standard counterbalanced fork trucks. *STOW System requires an aisle only inches wider than the load size.* Specially designed channeled racks support the STOW attachment during the entire cycle of operation. Load weight being shifted cannot become unbalanced in picking up or discharging.

What STOW System will do . . .

The STOW System makes available up to 60% more usable storage in warehousing and in-process storage. STOW System lowers re-handling costs, speeds handling. STOW System innovates new concepts of material handling which increases existing storage capacities and cuts new construction storage costs. The STOW System is a revolutionary approach to modern material handling and offers tangible savings, versatility, and complete safety for load and operator.

*** SIDE TRANSFER OPTIMUM WAREHOUSING
SYSTEM**

See STOW System In Operation!

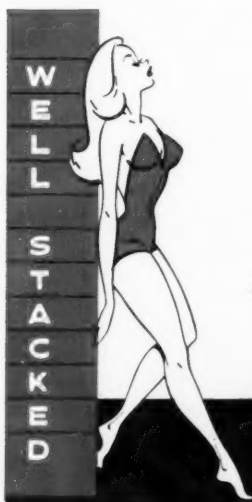
MATERIAL HANDLING EXPOSITION

BOOTH 2017-19 • CLEVELAND AUDITORIUM • JUNE 9-12

Or write for descriptive literature

Selective Storage For:

PALLETS . . . SKID BOXES . . . SKIDS . . . DIES . . .
PORTABLE RACKS . . . WIRE CONTAINERS . . .



**EQUIPMENT
MFG. INC.**

21550 Hoover Road
DETROIT 5, MICHIGAN

Circle 163 on Reader Service Card for more information

THEN

Material Handling Equipment

NOW

Conductor Bar System

The Cleveland Crane & Engineering Co.

A significant development made by the Cleveland Tramrail Division of this company is its electrical conductor called "Safepowrbar." It is used on cranes and along tramrail tracks to provide power to motor driven overhead material handling equipment. Formerly to provide a means of safety an open type conductor bar was shielded by a rubber cover as shown in the sketch. This left the bottom of the bar and the current collector wheel exposed. New model is enclosed in a high dielectric insulating cover. It has only a small opening in the bottom for the electrical collector sliding shoe. Holder for the bar is also made of a high dielectric material.

Circle 393 on Reader Service Card for more information

Bottle Conveyor

M-H Standard Corp.

Speeds up to 200 feet per minute as compared to 100 ten years ago. The design today is cleaner, safer, and more attractive.

Added features include nylon bearing surfaces under bottom and top belts; adjustable side rails; variable speed drive; and grease sealed ball bearings. The quieter operation has resulted in tradename of "Silent Top."

Circle 394 on Reader Service Card for more information

Mobile Loading Ramp

Magline, Inc.

Four main design improvements have been made since it was introduced about a decade ago. Non-slip grating tracks now permanently eliminate traction problems. Safety hook and chain keeps ramp securely attached to carrier. Special Magliner safety curb design prevents gouging and scuffing of power truck tires. A broad 15" apron at one end fits flush to the truck or railcar floor. Greater strength is provided.

Circle 395 on Reader Service Card for more information

Loading Ramp

American Dockbridge, Inc.

Ten years ago, American Dockbridge's parent company, was busy cutting beveled boiler plate to bridge the gap between dock and truck. It required 2 to 3 men to move in and out of position. Today, the completely automatic, truck-activated loading ramp rises 16 inches above and moves down 10 inches below dock level. This is regardless of dock height. A smooth, easy grade is established between dock and truck.

Circle 396 on Reader Service Card for more information

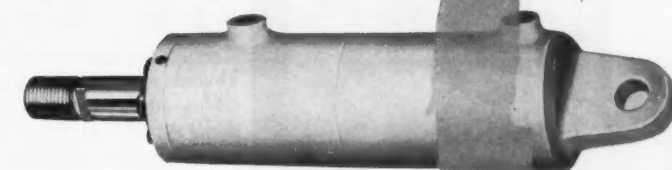
Castors

The Fairbanks Co.

Company line ten years ago was a semi-steel construction assembled with a king-pin or a king-bolt. Within the last decade, the "Lockweld" construction of steel swivel casters has been patented by Fairbanks. It locks the ball bearing raceways in rigid alignment by enclosing the top of the caster fork within the structural unit formed when the top plate is welded to the retaining plate. Easy, smooth swiveling results.

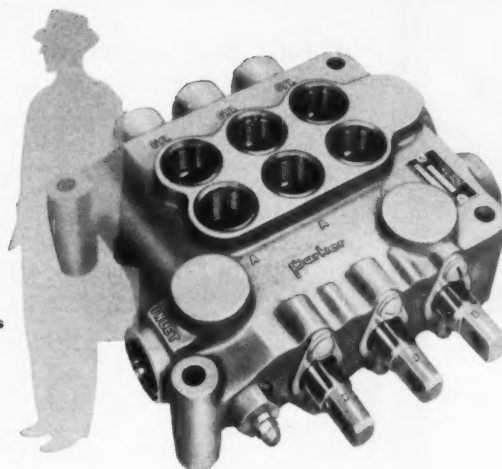
Circle 397 on Reader Service Card for more information

Parker "Krimp-Lok" Hose Assemblies
(by Parker Fittings and Hose Division)



HANNIFIN Mobile Hydraulic Cylinders
(by Hannifin Company—division of Parker-Hannifin)

Parker Control Valves
(by Parker Hydraulics Division)



Time-saving service for mobile equipment builders...

3 PARKER-HANNIFIN HYDRAULIC CIRCUIT COMPONENTS

see them at the show in 1 booth
discuss them in your office with 1 salesman

At the Material Handling Institute Exposition, you will see a full range of high-precision Parker control valves known industry wide for fine metering, for delicate control of heavy loads. You will see Hannifin power cylinders that efficiently and speedily convert hydraulic power into load-moving linear motion. Also a complete display of new Parker "Krimp-Lok" permanent-end hose assemblies that round out the 3-in-1 Parker-Hannifin service.

Also, if you need seal information, Parker Seal Company will have Parker O-rings and the new Parker "Gask-O-Seals" and "Stat-O-Seals" in this same Parker-Hannifin booth.

If you can't make the show, a Parker-Hannifin sales engineer representing all three divisions serving the mobile equipment field will discuss your mobile hydraulic problems with you at your own office. Just write to E. C. Davis, Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland 12, Ohio, to arrange for a visit from your



Booth No. 1510

**PARKER-HANNIFIN
MOBILE HYDRAULIC SPECIALIST**

REPRESENTING 3 DIVISIONS OF PARKER-HANNIFIN CORPORATION
Circle 170 on Reader Service Card for more information

MAY, 1959



Steel Shelving

Penco Div. of Alan Wood Steel Co.

Ten years ago, angle-type shelving was held together with nuts and bolts. Though strong and adjustable, installation was time consuming. Today, strong and precision formed channel clips save time, cut costs, and give shelf support at four points. Installation time is cut more than half, rearrangement is simple and fast. Pre-paint steel conditioning (anti-corrosive phosphate film) gives a tough surface finish.

Circle 398 on Reader Service Card for more information

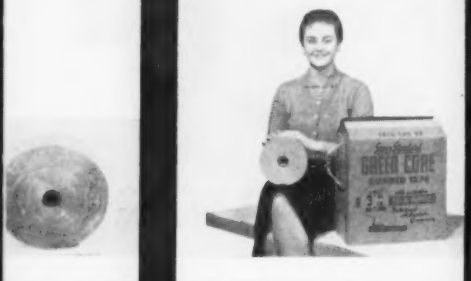


Portable Belt Conveyor

Speedways Conveyors, Inc.

Vertical adjustments were made on old model at one end only by means of hand keys. Supports were fabricated of pipe. Drive was $\frac{1}{3}$ hp gearhead motor with suitable sprockets to permit belt speed of 50 feet per minute. Today, vertical adjustments can be made at either end. Or the entire unit can be raised or lowered vertically by means of hydraulic cylinders. Supports are formed channel type. Drive has been increased to 3.4 hp motor. Belting is 3-ply gripping type.

Circle 399 on Reader Service Card for more information



Gummed Sealing Tape

Mid-States Gummed Paper Div. of Minnesota Mining & Mfg. Co.

Packaging of tape has received special attention since 1949. Company's old method of bundle wrapping is no longer used. Easy to handle and store corrugated cartons with water vapor resistant liner are used. Picture shows old style core and slitting of tape roll. New slitting gives smooth rolls, dust free, without uneven edges and loosely wound layers. "Appliguard" coating controls glue coating, insures tape uniformity.

Circle 400 on Reader Service Card for more information



Telescopic Conveyor

The Wilkie Co.

The Wilkie telescopic conveyor was introduced nationally in May, 1947. Then as now, sections were 5, $7\frac{1}{2}$ or 10 feet long, and supports were adjustable in height. Different leg settings now give varying floor heights in truck. A new method eliminates as many drops between sections as possible. Once set for the lowest truck, now it is automatically correct for all higher ones. It telescopes with fingertip control.

Circle 401 on Reader Service Card for more information



Personnel Pool

Manpower, Inc.

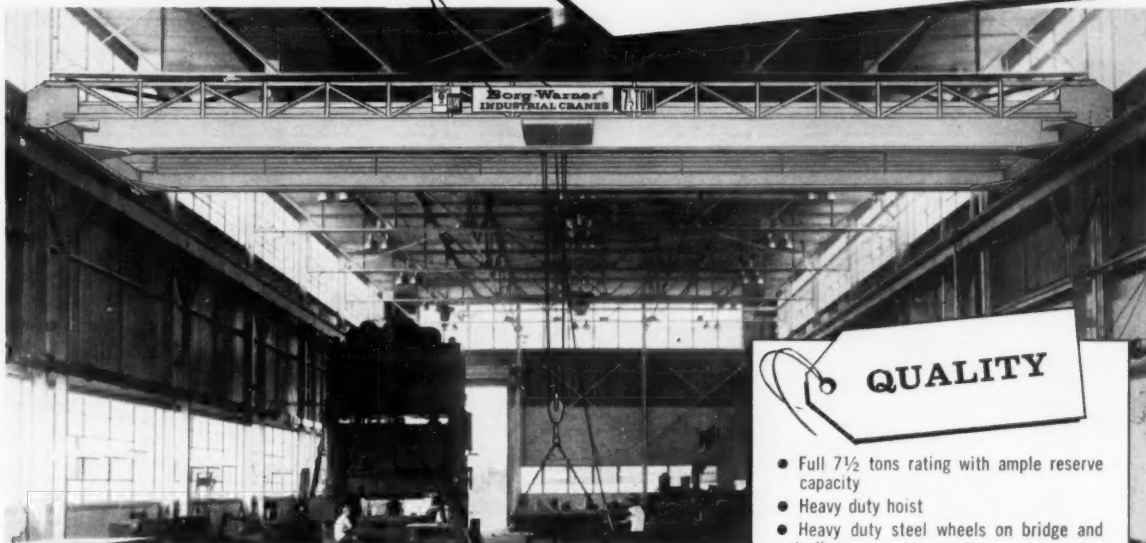
From a 2-city labor pool to 150-city temporary help and business service. Formerly consisted only of temporary help for labor and office work during peak workload periods and emergencies. Now includes surveys, product demonstrations, inventory taking, convention and trade show services. Newest development is a technical services division to assist with engineering, drafting, accounting, laboratory technology, and technical office work.

Circle 402 on Reader Service Card for more information

Borg-Warner Industrial Cranes
Quality at
a price you
can afford...

\$9900⁰⁰

For a 7½-Ton, 60 Ft. Span,
 3 Motor, Top-Running Double Girder
 Industrial Service Crane



Why Borg-Warner Industrial Cranes are BETTER VALUES

Value is determined in *QUALITY and PRICE* . . . and, a price like this for superior Borg-Warner Industrial Cranes construction and performance assures you of top value for your materials handling investment.

If you want to boost your production and operating profits by making full use of overhead space for materials handling . . . if you can use the extra storage space an overhead crane will provide as compared with fork-truck stacking . . . if you can benefit from aisles and work areas cleared of floor-type handling equipment . . . it will pay you to consider a Borg-Warner top-running, motor-driven crane like this. The cost may be far less than you had imagined. One crane owner thought it would cost him nearly four times this price to duplicate his crane.

Borg-Warner Industrial Cranes offers a complete line of overhead cranes . . . for light, medium or heavy service . . . constant or intermittent service at slow, medium or high speeds . . . operation from cab or floor. Get in touch with B-W Industrial Cranes today for answers to your materials handling problems.

QUALITY

- Full 7½ tons rating with ample reserve capacity
- Heavy duty hoist
- Heavy duty steel wheels on bridge and trolley
- All welded jig bored and jig assembled end trucks
- Long life precision ball and roller bearings
- Large gusset plates at end trucks
- Outrigger machinery girder construction
- Heavy duty gear reduction bridge drive
- Fluid coupled bridge and trolley drives
- Full magnetic push button control
- Magnetic bridge brake

MODERN DESIGN

The crane illustrated is a typical double girder installation. For shorter spans, smaller capacities and lighter or intermittent duty Borg-Warner Industrial Cranes can supply your needs at even lower prices.



**Design it better
 . . . Make it better.**



*Distributors in
 all principal
 industrial cities*

Borg-Warner® INDUSTRIAL CRANES

1530 S. PAULINA STREET, CHICAGO 8, ILLINOIS

Export Sales: Borg-Warner International, 36 South Wabash Ave., Chicago 3, Illinois

Circle 22 on Reader Service Card for more information

THEN

Material Handling Equipment

NOW

Conveyor Belting

United States Rubber Co.

Company invented and introduced cotton-nylon belting in 1949. The initial research on use of nylon as a conveyor belt material began in 1940, but it was not until after World War II that it became available in quantities large enough to permit its use in this application. The original design has been broadened to five different constructions. Super fabric Usrex nylon is used in heavy duty and longer ranging installations. Other special types handle hot materials, problem applications.

Circle 403 on Reader Service Card for more information

Tote Trays

Metal Edge Industries

First paperboard tray was of .060 and .080 calibre superfiber board, held together at corners with metal edge stay material. Later, the utility and durability of trays was increased by addition of metal hinges with handles. They give simpler handling and increased protected stacking.

Circle 404 on Reader Service Card for more information

Lo-Lift Truck

Barrett-Cravens Co.

First model was introduced a decade ago. Today, it has a new look and performance. New gear drive has reduced overall length, making narrow aisle and cramped area work easier. It operates in 6 foot aisles with 48 x 48-inch pallet loads. New model has total lift of 4 inches, is available in 4000 and 6000 pound capacities. Two speeds forward, and two reverse. Power lowering of forks, in addition to usual power lift, is a feature along with "Flying Saucer" pallet entry discs.

Circle 405 on Reader Service Card for more information

Battery Charger

Motor Generator Corp.

On-the-spot charging can be done by inexperienced personnel now. Unit has enclosed dead-front construction; charge control for foolproof operation and easy equalizing; input and output cables for fast installation; and generator design for factory-set charging rates.

Circle 406 on Reader Service Card for more information

Drum Handling Elevator

The West Bend Equipment Corp.

Early model operated from 110 ac. Its lifting mechanism consisted of hydraulic cylinder and cables. Present vertical lift battery powered unit is also equipped with a drum handling attachment, same front end style dumping action. Instead of using a cable, there are two single strand roller chains. New unit has dual, self-aligning floor lock. Old had a jack up type handle. New elevator merely approaches drum so that grab part is secured with the clamp by connecting the hasp. The gear arrangement has also been improved so that it revolves with ease.

Circle 407 on Reader Service Card for more information

PAYLOADER



"Roll-back, pry-out action solved our stockpile problem"*

*That's what W. W. Hayes, Supt. of Brick & Tile Corp., Lawrenceville, Virginia has to say about their 4-wheel-drive Model H-70 "PAYLOADER". And he adds "it is fast, maneuverable and ruggedly built to do the job and is most efficient in our operation. Operators praise the ease of operation and safety. We've been using 'PAYLOADER' units continuously for seven years with very satisfactory service. Downtime has always been minor".

Brick & Tile Corp. produces 10-million brick equivalent annually and had the first tunnel kiln in Virginia. It depends on the H-70 to move clays and shales from the

sheds to the mixers — Summer and Winter.

The H-70 with 7,000 lbs. Carry Capacity is the middle size of three 4-wheel-drive "PAYLOADER" models. Three smaller "PAYLOADER" tractor shovels with front-wheel-drive and with 2000, 2500 and 3000 lb. carry capacity ratings are available for close-quarter operations indoors and outdoors including box car unloading.

Have *you* tried the "PAYLOADER" way to reduce materials handling costs? Your Hough Distributor has the machines and the application experience to be of real assistance. Ask him about Hough Purchase and Lease Plans too.

HOUGH®



THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS

SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY



THE FRANK G. HOUGH CO.

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731 Sunnyside Ave., Libertyville, Ill.

Send us more data on "PAYLOADER" tractor-shovels

Name..... Street.....

Title..... City.....

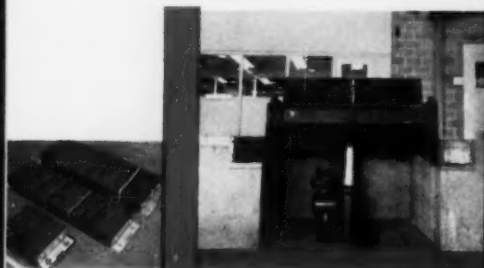
Company..... State.....

Circle 71 on Reader Service Card for more information

THEN

Material Handling Equipment

NOW

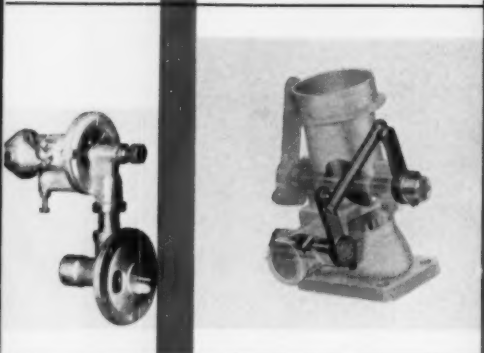


Dock Bumpers

Durable Mat Co.

Bumpers combining resilient rubberized fabric pads with steel to provide shock absorbing protection for truck docks were developed by this company ten years ago. They help eliminate repair costs to docks, building foundations, and to the trailers. Basic form has remained unchanged. New designs have been added. One unit permits a protective rubber surface to come to edge of dock ramp pit. Special anchorage and dock support devices, and shock-resisting floor pads are developments.

Circle 408 on Reader Service Card for more information



LP Gas Carburetor Jet

Century Gas Equipment

Ten years ago, Century discarded its venturi-type LP carburetor. In place, they use the revolutionary 3C (controlled combustion carburetor) progressive jet carburetor featuring LP metering valve control. The control is operated by a link from the air throttle lever which is adjustable. Once the proper adjustment has been completed, it remains in constant, perfect synchronization with the air throttle. Valve cut provides an optimum degree of accuracy in calibrating proper fuel-air requirements for a wide range of engine requirements.

Circle 409 on Reader Service Card for more information

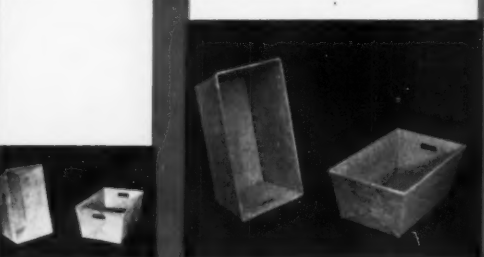


Overhead Conveyor

Richard-Wilcox Mfg. Co.

From a manual type to an automatic system. The old product had straight track, curves, brackets, and was used strictly as both a manual and pusher type conveyor. Today, feed-in has been added, along with escapement switches, power-rails, new type carrier. It allows materials to be moved automatically and economically from one predetermined work station or storage to another by a simple flick of a finger.

Circle 410 on Reader Service Card for more information



Tote Box

Convoy, Inc.

Fifty stock sizes of Chemboard tote boxes were available in 1949 in three styles. Today, 470 sizes are available in seven styles. The old boxes were made of 275-pound test corrugated. Today's models are 350-pound test. Handholes in today's models are smaller, smoother. Cuffs are now 1½ inch along sides, 3½ inches on ends. There were no corner reinforcements in early boxes; today's have 33 gauge steel strips.

Circle 411 on Reader Service Card for more information

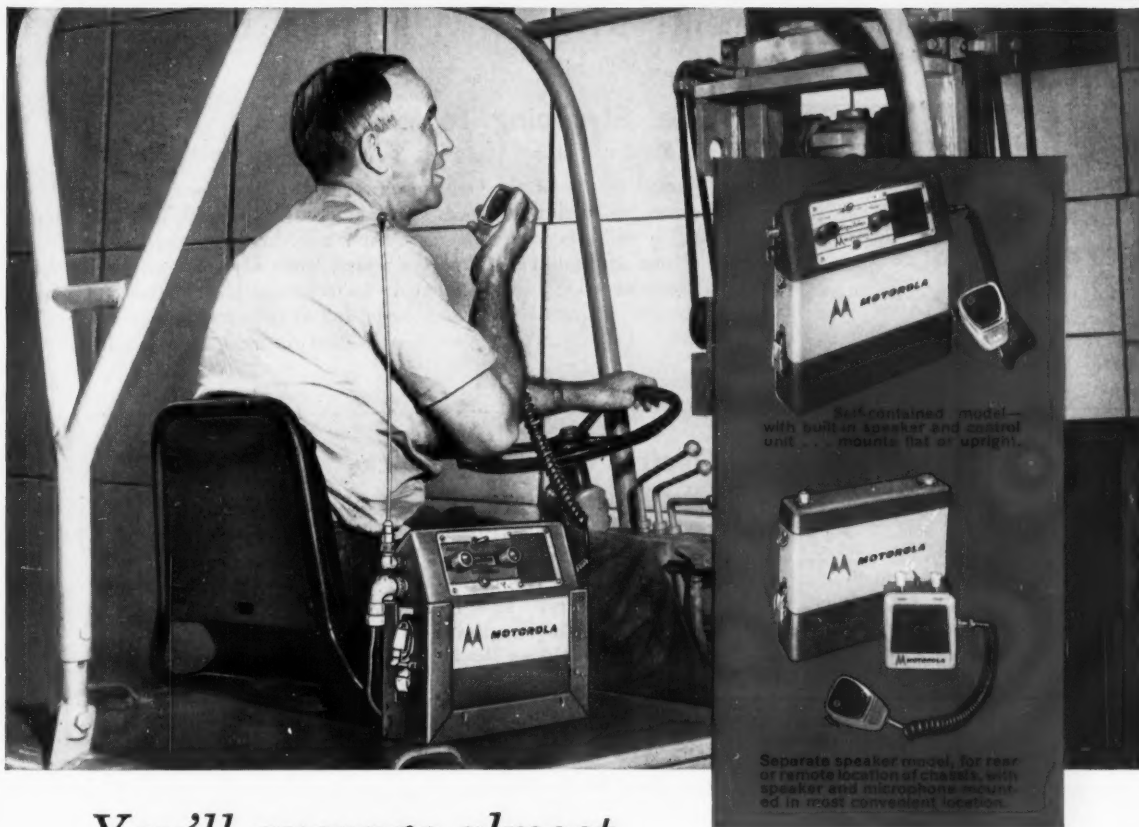


Electric Coil Handling Truck

Automatic Transportation Co.

The THF 15,000 pound capacity truck was 58" wide by 165" long with an 83" overall height. It gave 62" of lift. It also was a mechanical lift, and gave lifting speeds of about 9 feet per minute loaded. Elbolift is 48" wide by 148" long with an overall height of 80". It gives 120" of lift. It has hydraulic lifting arms rather than the conventional up-rights. This gives the additional lift and increases lifting speed to 12 feet per minute. Low maintenance and smooth operation are features.

Circle 412 on Reader Service Card for more information



You'll average almost
2 HOURS MORE PRODUCTIVITY
per vehicle per day with Motorola 2-way radio

That is what a survey of 45 typical companies showed. 2-way radio *increased* the productivity of each vehicle an average of 34%.

Motorola 2-way radio links *all* your materials handling vehicles—inside and out—with one central dispatcher. Radio helps him keep materials moving, enables him to get supplies *where* they're needed *when* they're needed.

And Motorola makes it easy to be "radio-controlled". From one source, you can get the complete "package"—systems engineering, financing, installation and maintenance.

The INDUSTRIAL "DISPATCHER" RADIO designed to fit every industrial vehicle

The smallest industrial mobile 2-way radio available . . . it uses transistors in power supply, receiver and transmitter to provide the lowest current drain of any industrial unit. It requires only one-eighth the drain of tube-type units, yet it has 50% greater speaker volume. Plated circuitry makes it more rugged and reliable. For use on gasoline, LP gas, diesel or electric powered vehicles. Get the full story today.



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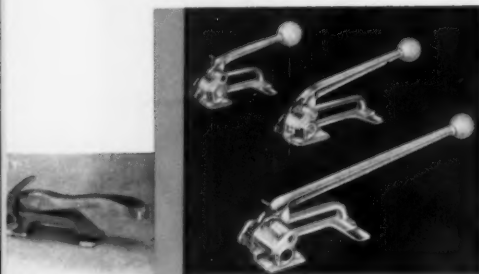
Circle 104 on Reader Service Card for more information

TRANSISTORIZED
dispatcher
 RADIOPHONE

THEN

Material Handling Equipment

NOW

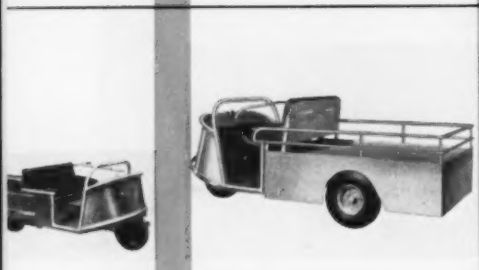


Steel Strapping Tools

The Stanley Works

Sound design of the Oxn, original model, has been transformed to the new "O" series. Oxn was small, lightweight, rugged, had a minimum number of parts, operation ease. New tighteners represent a simplification and streamlining to meet a wider range of strapping applications. Release lever has been eliminated. Its action is now in tightening head assembly. Three models today cover full range of strapping sizes.

Circle 413 on Reader Service Card for more information



Electric Cars and Trucks

Laher Spring & Tire Corp.

First Laher electric car designed along automotive principles was the "Hill Billy" golfer. This original product line has been expanded to include 25 different models for all types of industry and business. The "Mustang Delivery" shown was the first modification for material and personnel handling applications.

Circle 414 on Reader Service Card for more information



Die Handler

The Elwell-Parker Electric Co.

Two photographs show transformation from old cable winch operation to present day hydraulic remote control operation of the E12 model die handler. Old model's platform was raised by winch, dies were shoved off by hand. New model shows design improvement, capacity increase. Load is now positioned hydraulically.

Circle 415 on Reader Service Card for more information

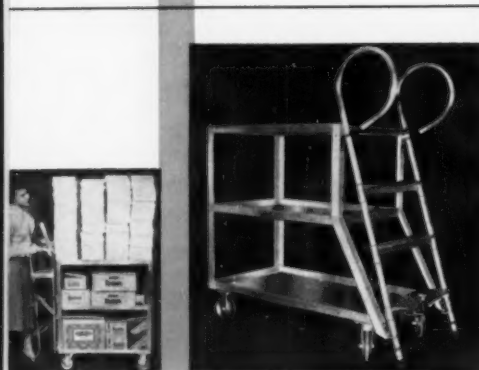


Pallet Truck

The Colson Corp.

Heavy steel plate construction was used in the 1949 model. It was heavy, and actually over built to give long service and stand abuse. Today's model weighs 40 percent less. New and more rigid linkage arrangement make possible use of only one hydraulic hoist instead of two as before. Completely new pallet entry device eliminates damage to pallets.

Circle 416 on Reader Service Card for more information



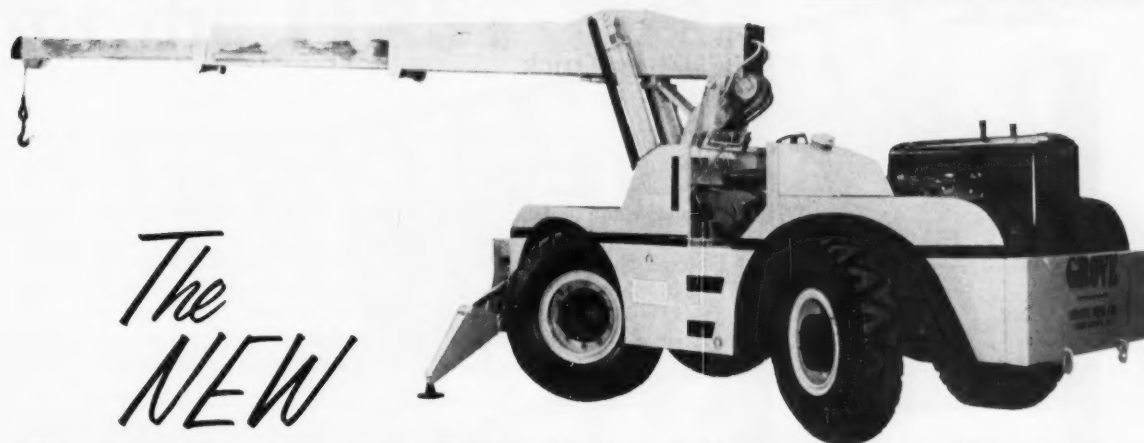
Stock Picker Cart

Rol-Away Truck Mfg. Co., Inc.

Over 70 models of specialized material handling hand trucks of light-weight aluminum construction are now manufactured by this company. The new "Step-Lock" feature is now being incorporated into the regular S series of stock pickers. As shown in the new illustration, the spring-loaded safety ladder is depressed and locked into positive bearing position on the floor. A simple pedal on the bottom step is worked by the operator. Truck is then stationary and stable. The completely redesigned safety ladder has three equally-spaced non-slip steps instead of two as on previous models.

Circle 417 on Reader Service Card for more information

• A ROUGH TERRAIN CRANE WITH REAL CAPACITY



The NEW GROVE RT-57 HYDRAULIC CRANE

AS VERSATILE AS AN ELEPHANT'S TRUNK . . .



. . . . YET
1000 TIMES
MORE RUGGED



SEE THE GROVE
LINE AT THE
LAKESIDE DOCK
EXHIBIT AREA

SEVEN TON CAPACITY
WITH STABILIZERS UP!

FOUR WHEEL DRIVE

FOUR WHEEL STEERING

THREE SECTION BOOM
TELESCOPES HYDRAULICALLY

12 TO 36 FEET

8 TO 24 FEET STANDARD

MAXIMUM LIFT HEIGHT 46 FT.
35 FEET STANDARD

PRICED AMAZINGLY LOW
THE NEW GROVE RT-57
GIVES YOU MORE CRANE
FOR NO MORE COST

• The New Grove RT-57 Hydraulic Crane will pick-up and carry a seven ton load four and one-half feet clear of the front bumper . . . a four ton load fifteen feet clear of the front or side of the crane.

This rugged capacity, plus four wheel drive and four wheel steering makes the Grove RT-57 performance in tough, off-the-road, conditions truly outstanding.

THE PROOF IS IN PERFORMANCE

LOOK AT ALL FOUR!

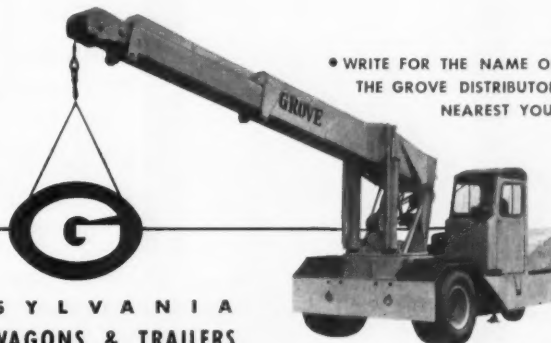
. . . but before you buy, have a GROVE competitive demonstration.

GROVE MFG. CO.

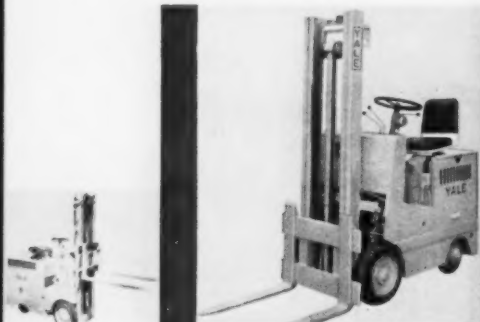
SHADY GROVE . PENNSYLVANIA
BUILDERS OF HYDRAULIC CRANES, INDUSTRIAL WAGONS & TRAILERS

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MAY, 1959



• WRITE FOR THE NAME OF
THE GROVE DISTRIBUTOR
NEAREST YOU.

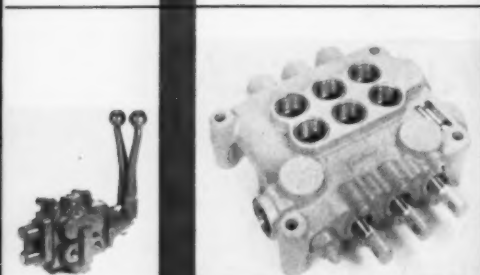


Electric Truck

The Yale & Towne Mfg. Co.

The 2000 pound capacity model of 10 years ago and its modern day counterpart comparison shows many improvements. There is a 13 percent decrease in weight with battery. It is 11 percent shorter from rear of counterweight to face of fork carriage. A five inch increase has been achieved in maximum fork height. Lifting speed has been increased 100 per cent. Hydraulic lift and tilt replace mechanical function, giving greater speed. Automotive type accelerating foot throttle replaces hand operation. Truck is accessible to operator from either side. Safety seat now cuts electric contact when operator leaves truck.

Circle 418 on Reader Service Card for more information

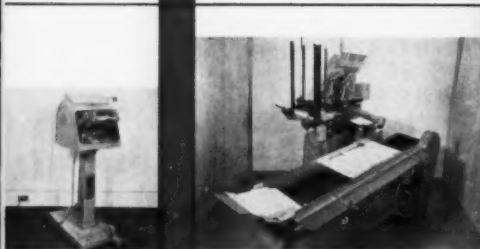


Hydraulic Valves

Parker-Hannifin Corp.

Ten years ago, the complete line for mobile equipment included a single-spool model and four models of double spool series. All were rated at 14 gpm capacity. Today there are many more models with ratings of 12, 20, 40, 65, and 150 gpm. Bodies are machined from high tensile semi-steel cast enbloc (one piece casting). Valves are more compact.

Circle 419 on Reader Service Card for more information

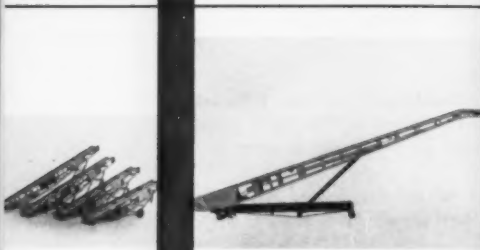


Marker Machine

Markem Machine Co.

From a power driven, manually fed marker to a more automatic and productive unit. Ten years ago, the operator placed an item on the work fixture, tripped the clutch to cycle the printing head, and then removed the printed piece. Now it gives greater printing pressure and ink distribution. The operator only has to keep the stacker filled.

Circle 420 on Reader Service Card for more information

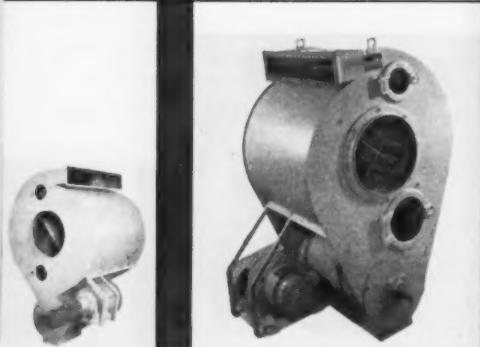


Chain Conveyor

Chantland Mfg. Co.

Older models had chain and wood cross slats, hand type cable lift. Bearing housings, sprockets, and rollers were cast iron. Sizes were 14 to 20 feet. Today's units use latest conveyor belting, have bearings throughout. Sizes are from 10 to 50 feet, all with power lifts.

Circle 421 on Reader Service Card for more information



Pneumatic Tangential Separator

The Cardwell Machine Co.

Ten year comparison of models illustrates how design was changed simply by varying the contour of the side sheets. It gives a smoother configuration with more artistically correct proportions. The slight additional material used was formerly lost as scrap. So net cost remains the same.

Considerable savings in assembly and welding were effected by the new corner joint. It allows use of a fillet weld. Internally, improvements resulted in the air lock and in the baffles. Improved separating efficiency resulted from the changes.

Circle 422 on Reader Service Card for more information

Available **NOW** for the **FIRST TIME**



STANDARD SIZE **PALMER-SHILE** **Adjustable** **STORAGE RACKS**

SERIES. 60

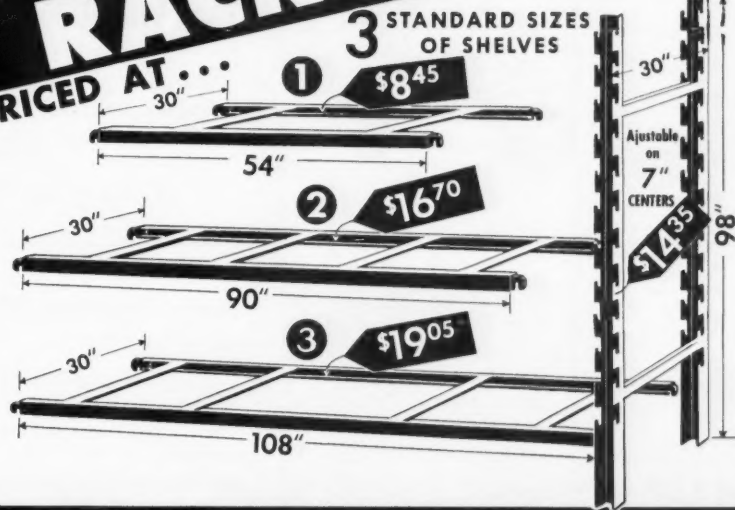
Pat. App. For

★
CAPACITY
5000 lbs.
per shelf
★

1 STANDARD SIZE PANEL



PRICED AT...



★ **IMMEDIATE DELIVERY FROM STOCK** ★



Here are the three different sizes of standard shelving, adjusted to various storage openings. Note flush top of racks joined at the right.

Why wait when you have storage problems that require fast action to save you time and money? Order Palmer-Shile new low cost P-S 60 Series standard racks. Shipment will be made to you from stock immediately after your order is received.

These new standard racks can be used for almost any plant or warehouse application, to store any kind of materials or merchandise up to capacities which cover usual storage needs.

P-S 60 racks are available in four pieces: A. The standard vertical panel, 98" high, 30" deep, 2 1/2" wide with shelves adjustable on 7" centers. B. Standard shelving of three different lengths, 54", 90" and 108", each 30" deep, to choose from to fit your specific storage requirements. Top shelf can be flush for use along entire rack surface to store items of various dimensions.

P-S standard racks can be set up by hand within a few minutes. There are no small pieces and no bolting or welding is required. You simply set up vertical panels, then snap in the adjustable shelves, for rigid, no-sway support. It's just as easy as that!

Racks are of sturdy channel steel construction for use with pallets, skids, boxes, or barrels. They can also be custom built to your specifications.



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DESIGNED AND MANUFACTURED BY

Palmer-Shile Co.

16012 FULLERTON AVE., DETROIT 27, MICH.
Export Division — 75 West Street, New York 6, N. Y.

Circle 111 on Reader Service Card

THEN

Material Handling Equipment

NOW



Strapping Stretcher

A. J. Gerrard & Co.

Old model 603 heavy duty flat strapping stretcher left the typical pig-tail of scrap strapping after the tie was completed. A later model introduced an integrally built in strapping shear to remove the objectionable pig-tail. Today's model 650 is pneumatic powered. It takes operational fatigue out of the tensioning operation. Powered automatic heavy duty band dispensers eliminate the labor it took to withdraw long pieces of heavy duty strapping from old style manual dispensers. Pneumatic powered sealers crimp-seal heavy band and seals.

Circle 433 on Reader Service Card for more information



Two Wheel Trailer

Saginaw Products Corp.

The model of 10 years ago had tire size of 6.00-16 Nom. 28" O.D. It weighed 500 pounds, had a channel iron frame, no brakes, heavy leaf spring suspension. Unsprung weight was heavy cross axle and wheel. Today's tire size is 6.00-9 Nom. 21" O.D. Weight is 290 pounds.

Circle 434 on Reader Service Card for more information



Dock Leveling Ramp

Globe Hoist Co.

Ten years ago, this company harnessed the hydraulic power cylinders of its allied line of garage lifts to supply the power component of its ramp line. These large-diameter, low pressure rams required permanent installation at ramp site. Today, units are designed with both hydraulic and mechanical power systems. Standard is 6 by 8 feet.

Circle 435 on Reader Service Card for more information



Castors

Faultless Caster Corp.

Current 900 Series is widely used for mobile stands, racks, trucks, dollies, carts, portable files, etc. Series is made with eight different kinds of wheels, either with plain or roller bearing. Top of old style was a flat plate. Today's are corrugated for greater strength. Load capacities have been increased, casters have dust cap and grease seal.

Circle 436 on Reader Service Card for more information



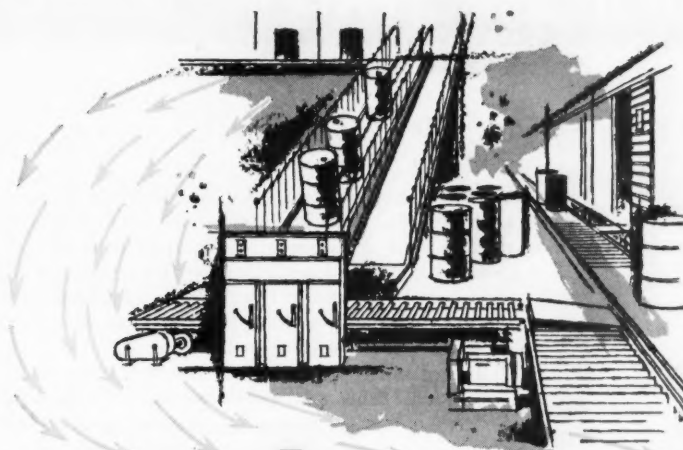
Air Hoist

Thor Power Tool Co.

Ten years have resulted in development of a 1000 pound hoist that is 25 percent more powerful, 86.4 percent lighter, and one that is much simpler to operate. The present lightweight version bears no resemblance to the company's 1949 air hoist except in identical 1000 pound capacity.

Current model weighs only 30 pounds, lifts 50 feet per minute with a full load. Old model weighed 205 pounds, lifted 40 feet per minute.

Circle 437 on Reader Service Card for more information

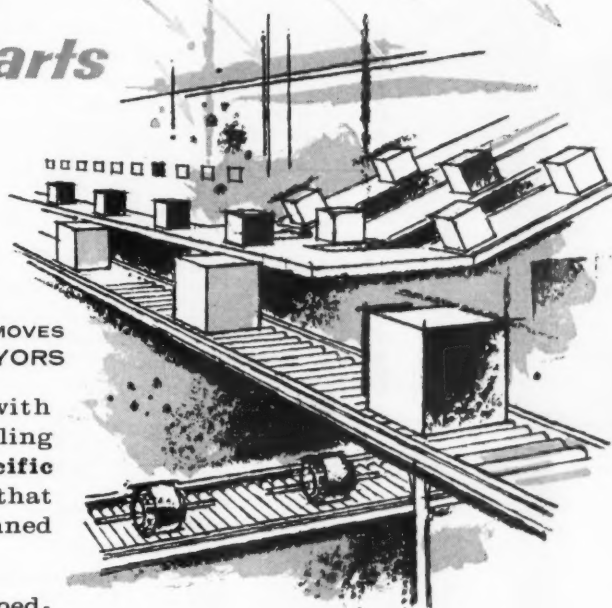


synchronized *movement of materials and parts*

ANOTHER REASON WHY INDUSTRY MOVES
BETTER - ON ALVEY-ENGINEERED CONVEYORS

Alvey engineers are never satisfied with stereotyped approaches to your handling problems. They start with **your specific needs** . . . apply creative solutions that synchronize inplant flow with well-planned integrated conveyor systems.

Many startling successes feature stepped-up production . . . more efficient, coordinated pacing of materials and parts in process . . . and savings that often pay back the initial investment within months! Let's talk over the possibilities of applying this talent and experience to your plant. No obligation . . . write or call now!



ENGINEERED CONVEYOR SYSTEMS • PALLET
LOADERS AND UNLOADERS • VERTICAL LIFT
CONVEYORS • ROLLER, BELT, APRON, PUSHER
BAR, SPIRAL, AND SLAT CONVEYORS
• PACKAGE HANDLING SPECIALTIES •

ALVEY

CONVEYOR MANUFACTURING COMPANY
9299 Olive Street Road • St. Louis 24, Mo.

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MAY, 1959

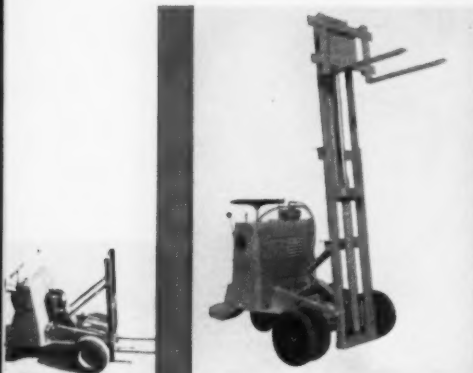
67

BUY OR BUILD YOU SAVE WITH MMM CRANES

THEN

Material Handling Equipment

NOW



Fork Lift

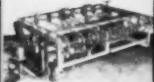
Kwik Mix Co.

A crude attempt was made by this company 10 years ago to devise a fork lift attachment for its "Moto Bug" powered wheelbarrow. The result was a makeshift arrangement operated by a purchased hydraulic system that could lift a small load only a few feet straight up and down.

Improved design resulted in today's S-10 Moto Bug fork lift. It is capable of lifting 1000 pounds to 7½ feet at 15 inch load center in just 15 seconds. A flow regulator controls the drop.

Mast is of telescopic design. It operates hydraulically from the operator's position. It has a 10 degree tilt and a 2 degree forward tilt.

Circle 428 on Reader Service Card for more information



Work Positioner

Fried Steel Equipment Mfg. Corp.

Eleven years ago, this company introduced its Liftveyor, as a companion piece for squaring shears. Original functions were to support sheet metal during cutting against bending or flexing with the help of the air operated plunger support. Two years ago, an extra heavy duty, double width capacity Liftveyor was introduced.

Circle 429 on Reader Service Card for more information



Platform Truck

Erickson Power Lift Trucks, Inc.

The old Erickson P-5 had 5000 pounds capacity. It did not have eye appeal or safety factors built into it. But it was fast, powerful, and simple to maintain. It had only manual, tiller-bar steering controls. The Model P-5A (articulated steering) is actuated by a hydraulic ram controlled with automotive steering wheel. Turning radius has been reduced.

Circle 430 on Reader Service Card for more information



Containers

G. B. Lewis Co.

Its first fiberglass reinforced polyester container was produced 11 years ago. A nesting tray 18 x 12 x 1 inch with a thickened rim, it is still in production. More versatile containers have followed. Most important, a stacking and nesting tote pan now made in 8 sizes. Two largest, equipped with casters, make a lightweight maneuverable 4-wheel truck. Fiberglass covers and dollies have been developed.

Circle 431 on Reader Service Card for more information



Automatic Pallet Loader

Lamson Corp.

Old model was powered by a single electrically driven hydraulic pump. In turn, it drove several hydraulic motors. Their control valves were operated by a web of control arms. Today, it is an electric-air operated machine. Electric motors have been improved, controls simplified, maintenance requirements reduced. Machine is lower in cost.

Circle 432 on Reader Service Card for more information

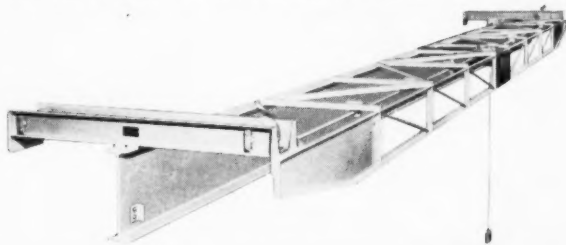
BUY OR BUILD YOU SAVE WITH MMM CRANES

New economy, safety and load-handling efficiency can be yours with an MMM Crane. More than 70 years of crane-building experience is your assurance of the finest workmanship, materials and structural and operational features.

"Build-it-yourself" components are available to assemble bridges for cranes up to 10 tons and spans to 50 feet. Pre-engineered, highly standardized components for many other cranes we construct on order, reduce costs substantially for owners. Engineered to the job Shaw-Box Cranes, in various types and in capacities to 500 tons and more, are serving all kinds of industries.

Whatever your crane needs, we invite your inquiry. Ask for Bulletin 15025-1A.

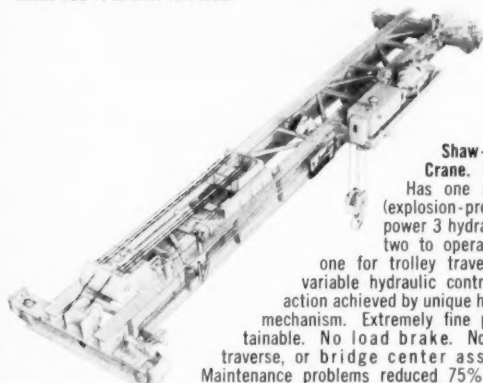
ELECTRIC TRAVELING CRANES



Type NE-SUH Load Lifter Crane. Up to 10 tons, 50-foot span. Popular in paper mills, warehouses, structural plants to serve a main bay or local area. Single girder, underhung. Operates on straight or tapered I-beam flange. Available with transfer bridge. End trucks have 6-ft. wheel base. Wheels adjustable to fit 8" to 24" I-beams. "Shaw-Matic" bridge drive provides smooth, cushioned acceleration and braking. Safer, faster spotting action. Pendant push-button control. Three speeds. Maximum 150 FPM with full load.



Type SBE Load Lifter Crane. Up to 5 tons, spans to 40 feet. Widely used in side bays in machine shops, paper mills and other plants of moderate size. Single girder, top running. Pendant push-button control. Three speeds. Maximum 150 FPM with full load.



Shaw-Box Hydraulic Crane. Up to 10 tons. Has one electric motor (explosion-proof design) to power 3 hydraulic motors — two to operate the bridge, one for trolley traverse. Infinitely variable hydraulic control. Hoisting action achieved by unique hydraulic lifting mechanism. Extremely fine positioning obtainable. No load brake. No hoist, trolley traverse, or bridge center assembly gears. Maintenance problems reduced 75%.

SPL-5



OVERHEAD LOAD HANDLING EQUIPMENT

Products of

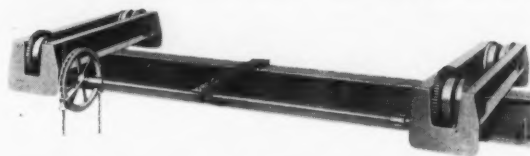
MANNING, MAXWELL & MOORE, INC.

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

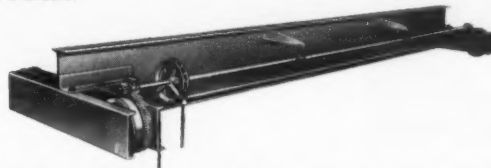
In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario

Circle 89 on Reader Service Card for more information

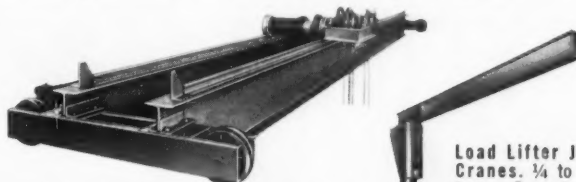
HAND-OPERATED CRANES



Type NH-SUH Load Lifter Crane. Up to 10 tons, spans to 50 feet. "Build it yourself" components to construct a single girder, underhung crane bridge at low cost right in your plant. Standard components include two assembled end trucks with 6-foot wheel base and wheels that can be adjusted to fit 8" to 24" runway beams. Also provided are shaft bracket and couplings and bearing assemblies; chain wheel and guide and 20 foot hand chain. You buy I-beam and cross shaft locally — save freight costs. Suitable hand or electric hoist available.



Type SBR Load Lifter Crane. ½ to 10 tons, spans to 40 feet. Single girder, top running. Particularly useful for accurate manual "spotting" and where travel length is moderate. Suitable hand or electric hoist available.



Type BR Load Lifter Crane. 3 to 50 tons, spans to 60 feet. Double girder, top running. Widely used in power plants, pumping stations, stone crushing plants, and warehouses. Two lifting speeds. 28 to 37½ foot lifts. Geared to save energy. Fast acting load brake. Wire rope does not overlap on drum. No tail chains to hang and foul the load.



Budget Bridge Drive. Used to convert hand-operated cranes up to 10 tons to electrical operation at low cost. No drilling or machining. Push-button control. Crane travels at walking speed.

Budget Gantry "A" Frame. ½ and 2 tons. Caster equipped. For low cost mobile hoisting service anywhere in the work area. "A" frames come knocked down, are easy to assemble with I-beam you buy locally.

Budget Crane Assemblies. Low-cost "build it yourself" kits available to construct single girder underhung and top running cranes with capacities to 6 tons and spans to 30 feet. You buy I-beam locally and save freight. Other big money savers are kits to build 180° swinging bracket jib cranes up to 4½ tons with reach up to 10 feet.



Load Lifter Jib Cranes. ¼ to 5 tons. Revolve smoothly through full circle on ball and roller bearings. No binding. Types that bolt to floor serve up to 550 sq. ft. Others set in concrete foundation; serve up to 1500 sq. ft.





NEWS ABOUT AMHS

MH Course a Success



NEW JERSEY—Thirty members attended the first session of the New Jersey Chapter's Advanced Material Handling Course. Dr.

Arthur Lesser (photo) chairman, department of industrial engineering, Stevens Institute of Technology, spoke on "Equipment Cost Analysis." In the photograph below are the NJ members respon-



sible for the MH course: (left to right) Charles Sander, education committee member; Jim Kelly, committee co-chairman; Ed Jones, chapter president; Ed Miller and Ray Reuter, committee members; Walt Friedman, chairman.

ATLANTA—The Atlanta Chapter and the Georgia Institute of Technology, school of industrial engineering, have held a three-day material handling short course. The program was designed to help Southern industries save money and increase production through improved material handling.

ST. LOUIS—A two-day seminar was held April 9 and 10 by the St. Louis Chapter. "Material Handling Standards—Profit Potential Unlimited" is the theme. Speakers at the first session were Matthew Murphy, editor of Factory Management and Maintenance; Eric A. Carlson, Ralston Purina Co.; Angus L. Lyons, Monsanto Chemical Co.; and Kenneth Barten of Washington University. During

the second day, Frank R. Weber of Modern Materials Handling and R. A. Surveyor, Alton Box Board Co., were heard.

MEMPHIS—The Memphis Chapter reports that its membership has been increased from 28 to 38. Chapter officers are shown in the



photo: (bottom row) James H. Patton III, secretary; Tom Clark, educational and meetings chairman; Marshall M. Tillman, chairman; (middle row) Roy M. Gibson, treasurer; P. A. Flanders, national director; Brooks P. Hughes, publicity chairman; (top row) Art Hibbard, sub-chairman, membership; Tom Rhodes, program chairman; David Ashby, Jr., sub-chairman, educational activities; Harry Luttrell, sub-chairman, membership; N. F. Waltemath, sub-chairman, program; Pat Bates, sub-chairman, publicity.

Tennessee Hears Shipping Expert



for Weber Addressing Machine Co., talked on "How To Stream-

NASHVILLE—The Mid-Tennessee Chapter recently held a clinic in conjunction with the University of Tennessee. Alec Mackenzie, manager of systems and procedures

line Shipment Addressing for Speed and Economy." Mackenzie discussed all aspects of shipment addressing and how they can be integrated.



Flint Chapter.

FLINT—"One of the important trends in industrial trucks is standardization of those elements of trucks which are of chief importance to the user," said Os-

MONTREAL—The Montreal Chapter recently heard a talk by Paul F. Youngdahl of Mechanical Handling Systems Inc., Detroit. Youngdahl is shown in the middle



of the photograph, flanked on the left by C. W. Casgrain of Mechanical Handling Systems in Windsor and on the right by W. L. Brown of Dominion Engineering Works Ltd. Brown is Montreal Chapter president. Youngdahl spoke on "Conveyors in Industry Today."

CHICAGO—"Work Simplification as Applied to Material Handling" was the subject discussed at a March meeting of the Chicago Chapter. Speaker was Allen Mogenssen, director of the Work Simplification Center.

FTB30-15
3,000-lb



FTP20-24
2,000-lb



FT20-24
2,000-lb

*Take another profitable
look at this*

THRIFTY NEW THREESOME

You have unmatched lift truck performance in the 2,000 to 3,000-lb class with the NEW Allis-Chalmers FT20-24, FTP20-24 and FTB30-15. Here's what we mean:

You have full 35 hp — 97 ft-lb of lively torque — from the sturdy, designed-for-the-job industrial engine. This is the most power available in trucks this size.

You have balance and stability, along with the power to climb a 34% grade with pneumatic tires, 40% with cushion tires, loaded. That's *real* performance.

You have maneuverability to turn sharply, spot loads quickly. Operators like the comfort and convenience of these trucks — the way they steer and handle.

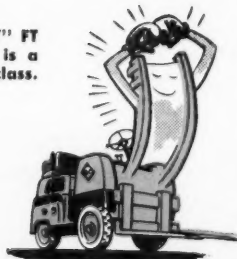
You have "years-ahead" design, with bonus strength from forks to counterweight — and unequaled time-saving serviceability.

Be sure to take another profitable look at this Thrifty NEW Threesome of lift trucks. See your material handling dealer or send coupon for new literature.



ALLIS-CHALMERS

Each New "HEFTY" FT Model Lift Truck is a real champ in its class.



Allis-Chalmers, Material Handling Sales Dept.
Milwaukee 1, Wisconsin

Please send me more information on the following:

☐ FT20-24

☐ FTP20-24

☐ FTB30-15

NAME.....

COMPANY.....

ADDRESS.....

CITY.....

STATE.....

Circle 3 on Reader Service Card for more information

BH-110

Industrial trucks will give MHE a preview of what tomorrow's trucks will look like and what they'll do.

Industrial Trucks of the

THE lift truck of the future will have no operator.

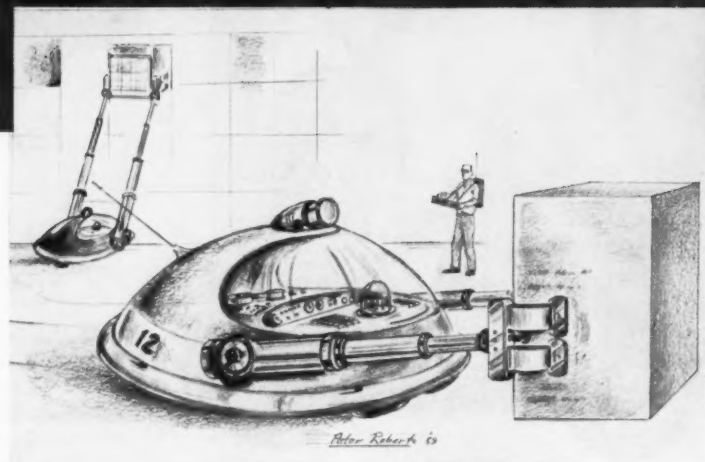
Punch cards or magnetic tapes will direct operations. A handling supervisor will insert pre-recorded instructions into a slot in the truck. And a day's work will be done without further supervision.

What about motive power? We see a unit that follows this pattern: atomic-power . . . to heat . . . to electric current . . . to hydraulic power. A cell, consisting of two dissimilar metals that generate current when heated, will provide power. Heat will be supplied by a small, closely controlled atomic pile that never needs refueling.

Current from the cell will drive a series of variable pitch, vane type hydraulic pumps. One will supply pressure to hydraulic motors for each of the truck's wheels. All wheels will drive and steer independently. Another hydraulic pump will supply the lifting mechanism. Others will feed steering, brakes and special attachments.

Clamps, fingers, hooks or similar devices will be used to lift loads. Those loads which lend themselves to palletization will be carried on low cost plastic, or paper pallets.

To avoid collisions trucks will be equipped with feelers sensitive to heat, pressure, or reflected sound. When it approaches an obstacle, a truck will automatically



SAUCER SHAPE is one of the features of this futuristic truck. Note how telescoping arms pivot to pick up load and place it in storage wall.

seek a new course. If all else fails, it will stop in its tracks and signal for an attendant to clear the way.

Stickers (labels) that radiate electron energy will help the truck locate loads in the warehouse. Each load will bear a sticker which radiates a specific amount of energy corresponding to pre-recorded signals on the truck's guidance tape.

R. A. Vance
Development Engineer
The Elwell-Parker Electric Co.

CONVENTIONAL (non-automatic) handling methods, with modifications, will remain in existence for many years. But, due to recent improvements in packaging, automatic and semi-automatic handling will appear in some areas.

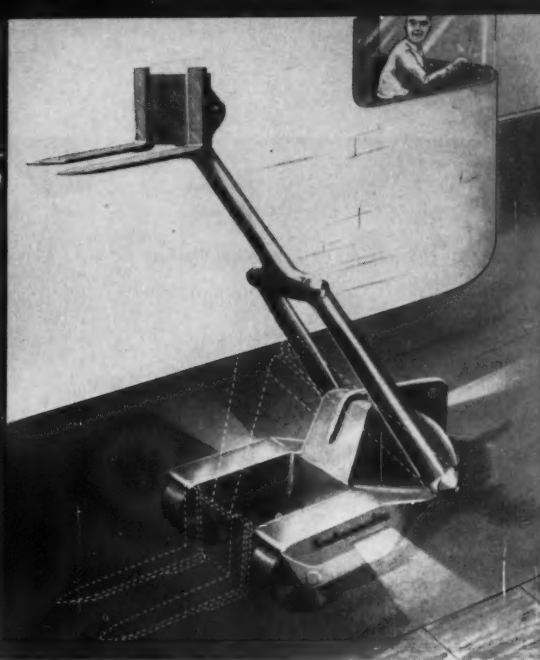
In the foreseeable future, tailor-made, special purpose trucks will continue to be a major means of handling materials. The basic truck will be a foundation upon which various building blocks may be added to suit particular applications. The building blocks may range from a wide variety of attachments to modifications in the truck structure itself.

In electric trucks the major change will be in the power package. New concepts of portable electric power are coming into the fork lift truck design picture. Within ten years they will be applied to many applications which are now considered beyond the range of existing electric powered equipment.

L. B. Nilsen
Chief Engineer
Lewis-Shepard Co.

REMOTE CONTROLLED truck has sensing device to keep it away from obstacles. Driver works in booth.

Future



TOMORROW'S lift truck design will be controlled primarily by the product it carries. It will be influenced by manufacturing methods, packaging, warehousing, shipping and receiving.

Many of today's products and processes already require entirely new material handling concepts. Ever increasing production and distribution rates will make necessary faster handling methods and more compact storage of raw materials and finished products.

Because it is flexible and adaptable to changing conditions, the lift truck will be a basic handling tool for a long time.

Lift trucks of the future will be shorter, but will lift higher. They will be faster, safer and more flexible. They will be able to maneuver in all directions and will make better use of aisles and storage space.

Attachments will be simplified. Grabs, rotators, side shifters and other devices will be combined so that many motions will be available from one mechanism.

Lifting masts will disappear. They will be replaced by jointed arms that reproduce the motion of human arms, hands and fingers. Almost any shaped object will be grabbed and positioned in any direction.

A definite possibility is that wheels will be replaced by some

type of walking mechanism. Walking beams will distribute the load over greater areas. The beams might be magnetized to walk on magnetized floors, making it impossible to upset a truck.

You won't need individual operators. Vehicles will be radio-controlled from a central station by a master operator. Through television, he will see exactly where all trucks are and what they are doing. Photoelectric eyes and radar beams will avoid collisions and contribute to automation and safety.

The strange thing about this prediction is that it is really no prediction. The truck I have just described could be built today. All the technical devices for such a robot are perfected and available.

Not yet available, but certainly in the picture for the future, are some radical changes in power supply. We are just beginning to understand how to produce large amounts of electric power directly from reactions between elements. (Several known methods include: combining radioactivity with various materials; heating dissimilar materials in a thermo-couple arrangement; light reacting on silicon cells.)

One of the most promising future power producing methods is the so-called fuel-cell arrange-

ment. The recombination of oxygen and hydrogen produces high amounts of electricity at almost 100% efficiency.

B. I. Ulinski
Director Design & Development
Automatic Transportation Co.

THE lift truck of the future will run on motor-wheel package units. The primary source of power may be a storage battery, gas, LP-gas, nuclear energy, or a spring. In every case, the work (traveling) will be done at the wheels.

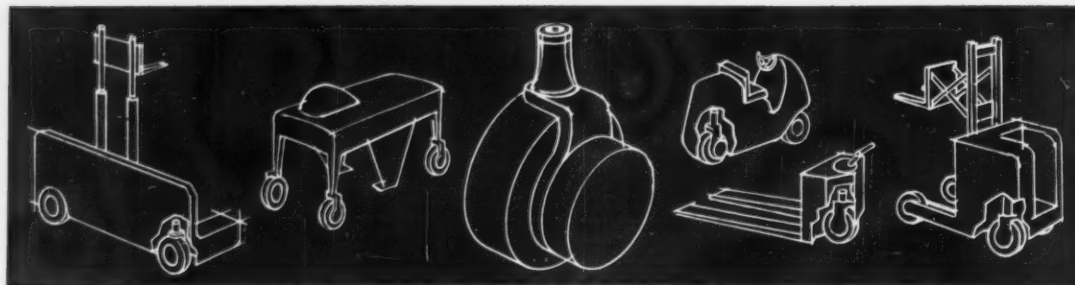
We will get power to the wheels in the most efficient manner (spacewise as well as energy-wise)—by making the driving motor and wheel a close-coupled unit. The drive train will be utter simplicity. Probably a single planetary gear set.

Flexible and Simple

A high efficiency, low RPM motor will have to be developed to keep the gearing simple. There are already some developments under way in this direction.

Brakes, of course, will also be part of the package unit.

Advantages of this power unit are simplicity and adaptability. With a stem on top, it can be steered as well as a driving wheel. Or, it can be mounted rigidly to



DESIGN SKETCHES show future thinking based on individually powered wheels. Each wheel assembly is

driven by its own motor. The self-powered wheels are shown on side-loader, straddle carrier, fork trucks.

the truck frame. It will be possible to have power at 1, 2, 3 or all wheels to suit requirements.

C. D. Gibson
Vice President—Engineering
The Raymond Corporation

THE answer to the question, "What will be the design of the lift truck of the future?", is a combination of today and tomorrow.

For carloading, freight handling and some in-plant movements, it will remain basically unchanged.

On the other hand, there will be greater specialization in many areas. This does not mean that trucks will be designed especially for each installation. It means that there will be more types of trucks, each designed for a special type of application.

Architects have found that it costs less to raise ceilings than to increase floor area to get a desired cubical content. As a result the fork truck of the future will lift higher, faster. It will have greater maneuverability and faster travel speed, improved safety and increased driver comfort.

In high volume warehousing of rather similar materials or packages, the trend is to longer narrower aisles with less cross aisles. Trucks will have to be able to make longer runs. And there will be some completely new concepts in vehicle structure and arrangement.

Increasingly narrow aisles will make right-angle stacking virtually impossible in some places. The solution, parallel stacking, will make necessary a truck capa-

ble of travelling and steering along either axis. The load will be carried within the basic vehicle area. Higher warehouses will bring on new concepts in lifting mechanisms and controls. It will become practically impossible for the operator to see if he is properly positioned to pick up or put down a load. Push-button or punch-card control of lifting height will solve that problem. Equipment will have to sense whether it is raising a load or reaching upward empty to pick up a load. Advance and

retraction of the load handling device will be cycled automatically.

Undoubtedly, new and unusual types of power supply will appear. I believe we will, within the next few years, see some striking improvements in more or less conventional sources of power. They will precede automatic power which we all expect in the distant future.

O. S. Carliss
Director of Engineering
The Yale & Towne Mfg. Co.
Yale Materials Handling Div.



THE trend in lift trucks is toward specialization.

It is certainly not premature for truck manufacturers to try now to visualize industrial and military requirements of the not too distant future. Many problems will require special trucks or adaptations of relatively standard models.

One possible truck of tomorrow (shown in the accompanying sketch) is one for handling atomic power reactor elements. Design

will be dictated by the characteristics of the job.

The controlling factor is a need for remote control. The truck will be used to service and maintain an atomic power reactor system. A television camera mounted on the main frame views actions of the manipulator.

Edward R. Sirotak
Chief Research Engineer
Baker Industrial Trucks
A Division of Otis Elevator Co.



Leading material handling men from three technical societies will gather in Cleveland in June. Purpose: to handle the Technical Sessions in conjunction with the 1959 MHI Exposition. Here are their backgrounds.

MH Experts in Tech Sessions

CHAIRMEN



King



Rix



Gaudreau



Saunders



Carle



Reiner

THE TECHNICAL SESSIONS held in conjunction with the 1959 Exposition are a must for the material handling engineer. Maybe you have handling problems that need solving. Or perhaps you want to broaden your thinking—learn more about handling management, engineering, or applications. Then the place for you is at the "Breakthrough" sessions, to hear the experts talk on these subjects and answer your questions. (You'll find a schedule of sessions and a registration form following page 40.)

Expert is the word for the men who will participate in the technical sessions. The background and experience of each guarantees that you'll pick up many practical handling ideas to take back to your company.

Here are the speakers for the 1959 Technical Sessions.

Society for Advancement of Management . . . June 9

Warren King, session chairman
Manager of features and departments at Factory magazine and SAM national vice-president for material handling. Has held various industrial engineering posts in the non-ferrous, utility, and rubber industries. Graduate, Massachusetts Institute of Technology.

Roy W. Rix, session chairman
Senior consultant, cost and methods department, Cleveland Electric Illuminating Co. His present assignment deals with the use of work simplification as a means of increasing productivity. Rix has presented work simplification and methods improvement programs at his company, to industrial groups, and at several universities.

Fred E. Harrell

"How To Sell Me on Material Handling"

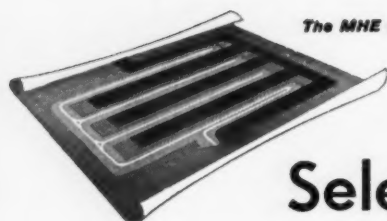
General manager, Marquette Div., Curtiss-Wright Corp., and national treasurer of SAM. Formerly served as vice-president of marketing, sales manager, sales engineer, and chief engineer for another Cleveland firm. Graduate, Purdue University.

Charles A. Thomas

"The Type of Individual Best Suited To Carry Out Material Handling and Packaging Activities"

Assistant secretary—manager, industrial relations, Standard Pressed Steel Co. Has done work in management consulting, time study, and data analysis. Graduate, Duke University.

(Continued on page 138)



The MHE Conveyor Series

Selection and Use of Vibrating

This is the third article in a series giving important information on conveyors to material handling engineers. The next article will be on roller and wheel conveyors.

TOUGHNESS and versatility are outstanding features of vibrating conveyors. Look at a few of the things they can do.

- Convey products from kilns, roasters, and furnaces at temperatures up to 3000°F. The heavy steel trough can be designed to resist the most abrasive material.
- Handle anything from electric light bulbs to 4000 tons of crushed rock an hour. And while conveying, they can perform other operations—heating, drying, washing, sizing, sorting, blending, and orienting parts.
- Move material downward, horizontally, or up slopes as great as

10 degrees. Packages can also be moved by vibrating conveyors.

- Prevent loss of material by spilling or dusting. The vibrating conveyor has high sides and can easily be covered to prevent dust from getting out, dirt from getting in.
- Move two or more products at the same time without mixing in the same conveyor. This is done by dividing the trough into compartments along the line of flow.
- Prevent damage to the most fragile flake, pellet, or finely machined part by proper choice of stroke and frequency. Material is not broken up.

Vibrating Conveyor Types

The vibrating conveyor is a metal trough mounted on flexible supports, free to move in a vertical plane. It is vibrated at an angle of about 30 degrees to the horizontal. Material moves in a series of gentle pitches and catches that blend to produce continuous, uniform flow. There is no tumbling or sliding to wear the trough.

Despite the large number of firms manufacturing vibrating conveyors, there are only two basic types—the natural frequency types (those supported by heavy duty stiff coil or leaf springs) and those supported by rocker arms

VIBRATING CONVEYORS Conveyability and Densities

Material	Conveyability	Densities in pounds per cu. ft.	Material	Conveyability	Densities in pounds per cu. ft.	Material	Conveyability	Densities in pounds per cu. ft.
Alum. lump	Good	60	Cork, in bales	Subject to Test	8.9	Limestone, broken, in loose piles	Good	95
Asbestos, ground	Poor	15	Cork, ground, 10" mesh x 0"	Good	4.5	Limestone, sized, 3" x 2", loose	Good	95
Ashes, dry, loose	Poor	28	Curlet, glass, average	Good	85-100	Limestone, sized, 2" x 1 1/2", loose	Good	92
Ashes, wet, loose	Fair	47	Curlet, glass, 1/2" x 0"	Good	80-90	Limestone, sized, 1 1/2" x 0", loose	Good	96
Attapulgite Clay	Very Poor	14	Diatomaceous Earth	Very Poor	10-15	Limestone, ground, 50 mesh, loose	Fair	84
Baking Powder	Poor	56	Dolomite, calcined	Poor	40	Limestone, ground, 200 mesh, loose	Poor	65
Barytes	Fair	216	Dolomite, crushed, 2" x 1/2"	Good	94	Manganese Ore	Good	140
Bauxite	Good	70	Dolomite, crushed, 1/2" x 0"	Good	98	Marble, crushed	Good	95
Bone, ground, dry	Fair	75	Earth, common loam, dry, loose	Good	76	Milk Powder	Fair	35
Borax	Good	105-110	Earth, common loam, moist, loose	Good	73	Molybdenum Concentrates	Poor	115
Calcium Carbide, crushed			Feldspar, broken, in loose piles	Good	90-100	Oyster Shells, piled	Good	60
3/4" x 2", loose	Good	77	Fire Brick, 1/2" x 0"	Good	85	Peanuts, Spanish	Good	40
2" x 1/2", loose	Good	75	Flint, broken, in loose piles	Good	110-125	Phosphate Rock, broken, in loose piles	Good	75-85
1/2" x 3/4", loose	Good	80	Flint, ground, 100 mesh x 0"	Good	90-100	Phosphate Rock, pebble	Good	90-100
1/4" x 0", loose	Good	82	Flint, pebbles	Good	105	Phosphate, Super	Fair	70
Carbon, Activated, very fine dry	Very Poor	8.20	Fullers Earth, dry	Very Poor	30-35	Potash, 1 1/2" x 1/2"	Good	70
Cement, Portland, loose	Poor	94	Glass Batch	Good	90-110	Quartz, broken, in loose piles	Good	94
Cement, Portland, clinker	Good	95	Gneiss, broken, in loose piles	Good	96	Resin, Vinyl	Poor	25-35
Charcoal, broken, all sizes	Good	15-30	Granite, broken, in loose piles	Good	96	Rubber, shredded scrap	Fair	46
Charcoal, broken, 1 1/2" x 0"	Good	14	Granite, crushed, 1 1/2" x 10 mesh	Good	98	Salt, coarse	Good	45-52
Charcoal, ground	Fair	10	Gravel, mixed sizes, loose	Good	96-100	Salt, fine	Fair	42-50
Chips, wood	Good	18	Gravel, 2" x 1/2", loose	Good	105-110	Salt, table	Fair	42.45
Cinders, blast furnace	Good	57	Gravel, 1/2" x 1/4", loose	Good	95-100	Salt, Rock, broken, in loose piles	Good	50
Cinders, coal, ashes and cinder	Good	40	Gravel, 1/2" x 1/4", loose	Good	107	Salt, Rock, fine	Good	55-60
Clay, dry in lumps, loose	Good	63	Greenstone, broken, in loose piles	Good	90-94	Salt, fine	Fair	45-50
Coal, Anthracite, broken, loose	Good	55-60	Gypsum, crushed, 1" x 0", loose	Good	90	Sand, dry, loose	Good	90-95
Coal, Bituminous, broken, loose	Good	50-54	Gypsum, ground, loose	Poor	50-56	Sand, wet, loose	Good	105-110
Coal, Bituminous, 1 1/2" x 0", dry	Good	54	Iron, (cast) borings, fine, dry	Good	120-155	Sand and Gravel, dry	Good	90-105
Coal, Bituminous, 1/2" x 0", dry	Good	45	Iron Ore, loose	Fair-Good	125-150	Sand and Gravel, wet	Good	105-125
Coal, Bituminous, 1/2" x 0", dry	Fair	43	Iron Pellets	Good	124	Sand, molding, prepared and loose	Fair	77-80
Coffee, M&D	Good	22	Lime, hydrated, 200 mesh	Very Poor	20-25	Sand, molding, rammed	Fair	90-100
Coke, lump, average	Good	28-32	Lime, quick, lump, 1 1/2" x 0"	Good	70-80	Sand, molding, shaken out or new	Fair	100
Coke, breeze	Fair	30-34	Lime, quick, lump, 1/2" x 0"	Good	70	Sandstone, broken, in loose piles	Good	82-86
Coke, petroleum, lump	Good	40-50	Lime, quick, ground	Poor	60-55			
Cork, solid	Good	15	Lime, quick, from oyster shells, loose	Fair	45-50			

Conveyors

by John Chahbandour
Carrier Conveyor Corp.

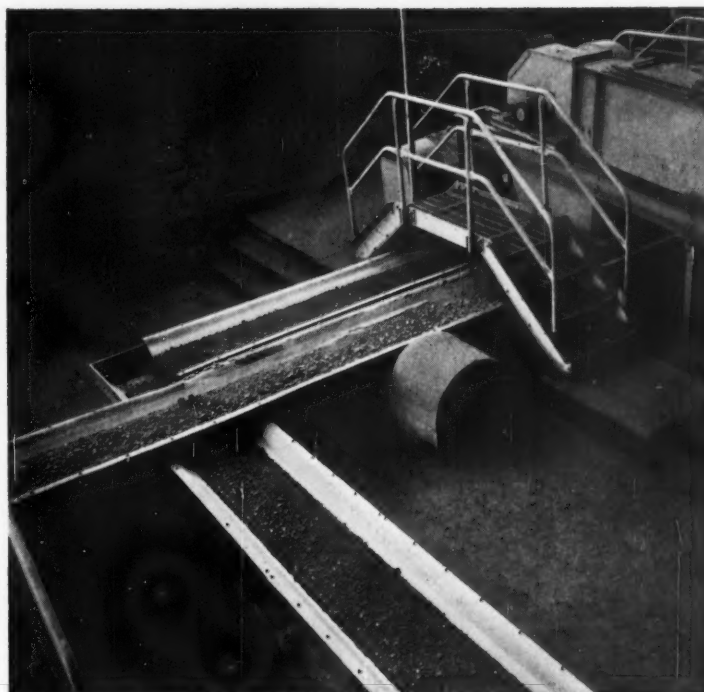
or rods pivoted at the trough and at the base connections. Both types of conveyors require high starting energy but a natural frequency conveyor usually operates on less than 50 percent of the horsepower required to start it in operation. Because the springs which support a natural frequency conveyor act as individual drive units, input horsepower is uniformly distributed along the conveyor trough and high stress concentrations are avoided.

Vibrating conveyors are also divided into dynamically balanced and unbalanced types. The unbalanced conveyor has the lowest

of Solid Materials

Material	Conveyability	Densities in pounds per cu. ft.
Sawdust, dry	Fair	7-12
Scale, rolling mill	Fair	105
Shale, crushed, in loose piles	Good	92
Shot, Steel	Good	250
Silica, Flour	Very Poor	65
Slag, bank, crushed	Good	80
Slag, furnace, granulated	Good	60
Soap, Powder	Poor	30
Soap, Flakes	Poor	6-11
Soda Ash, dense	Good	60-62
Soda Ash, light	Poor	28-32
Soda, Bicarbonate, loose	Poor	50-58
Starch, granular	Good	22-25
Stone, crushed, 1" x 0"	Good	85-105
Sugar, granulated, loose	Fair	42-50
Sugar, brown	Fair	45-55
Sulphur, ground, 100 mesh	Poor	75-85
Sulphur, ground, 200 mesh	Very Poor	50-55
Trap rock, broken, in loose piles	Good	107
Trap rock, crushed	Good	95-105
Tungsten Carbide, Powder	Very Poor	250
Wood Chips	Fair	8-15
Wood Flour	Poor	20-25
Zinc Oxide	Poor	35

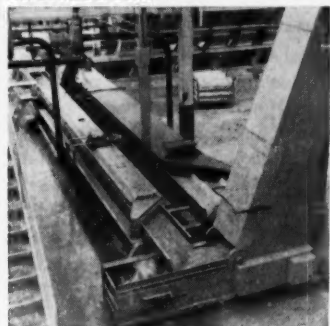
The above table has been compiled from several sources. The figures have been carefully checked and apply to average conditions. It is to be expected, however, that the densities of some materials prepared under certain conditions or by certain methods may vary considerably from the figures in the table.



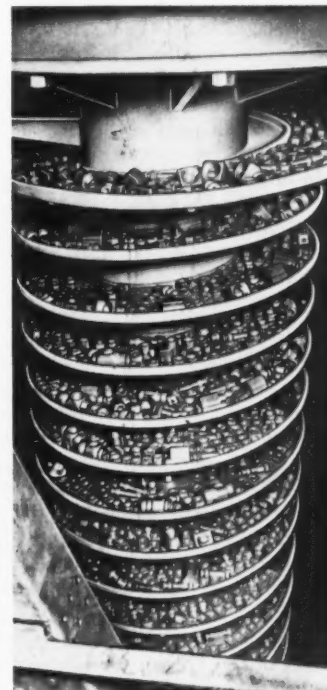
CEMENT mills have to move products that are abrasive, dusty, and hot. This unit is especially designed for high temperature applications. Its overlapping trough sections expand and contract with the heat without transmitting any thermal stresses to the driving unit's spring system.



PICKLE slices, moving at 30 to 40 fpm, are sized by a vibrating screen. Screens handle most foods.



CEREAL is moved with a vibrating conveyor because it combines sanitary construction with convenient screen to remove oversize particles.



METAL PARTS are elevated out of a tank with this spiral vibrating feeder. Large area in a small volume makes it suitable for cooling.

Vibrating Conveyors

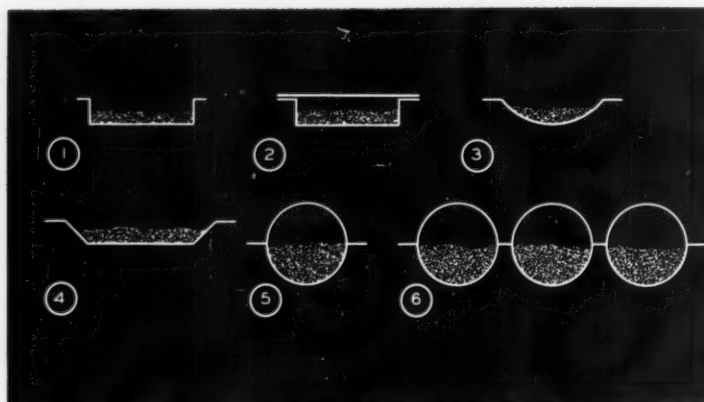
first cost. However, it must be secured to a heavy concrete or steel foundation and can normally be used only on the ground floor. Balanced units are installed in places where the transmission of vibration to the supporting structure must be held to a minimum. Balanced conveyors are sometimes constructed with two troughs mounted side by side, one above the other, or end to end with one feeding into the other. The troughs are driven 180 degrees out of phase by a cammed eccentric drive to produce an economical type of balancing.

In ordering conveyors, you can get a standard power section, and add to it the number of extension sections you need.

Power is applied to conveyors mechanically through rotating weights and eccentrics, and electrically through electro-magnets. Power can also be applied through hydraulically or pneumatically operated pistons.

Conveyor Drives

There are three basic types of drive: (1) nonpositive rotating weight; (2) the positive eccentric; (3) positive eccentric with flexible link. The rotating weight type of drive is simply a single rotating weight on the trough of the conveyor. The centrifugal force set up by the weight vibrates the flexibly supported trough in a vertical plane. Restrictor devices such as weak leaf springs keep the trough



STANDARD TROUGH SECTIONS: 1. Open trough used for normal conveying. 2. Closed trough used where material is dusty or must be protected from outside contamination. 3. and 4. Used for shallow loads, picking, sorting, cooling, inspection, or grading. 5. and 6. Used where one or more materials are to be handled without loss or to prevent contamination.

vibrating along a line at roughly 30 degrees to the horizontal. Another type of rotating weight uses two opposite turning weights geared together. Whenever the weights pass each other, the trough moves in that direction. At other parts of the cycle, each weight cancels out the reaction of the other so that no trough restrictor devices are required.

The positive eccentric drive uses an eccentric shaft mounted on the base of the conveyor, under the trough. A drive arm or link of fixed length connects the eccentric to the trough. Rotation of the eccentric imparts a reciprocating motion to the trough.

How To Use Vibrating Conveyors

The best way to get a fresh view of the possibilities of vibrating conveyors is to examine what other industries are doing with its advantages.

Metalworking—Turnings, chips, and metal scrap of all types from screw machines, lathes, punch presses, or shearing machines can be handled easily by the vibrating conveyor. The troughs can be combined with convenient drains to remove the coolant. Delicate parts such as gears and finish-ground shafts are moved from one operation to another. At one of Western Electric's diecasting plants they found that the objectionable noise of aluminum scrap being advanced

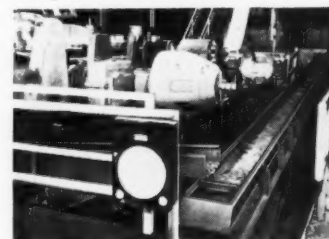
(Continued on page 142)



SAND is separated from castings on the grizzly. Hot castings weigh up to 100 pounds, move at 85 fpm.



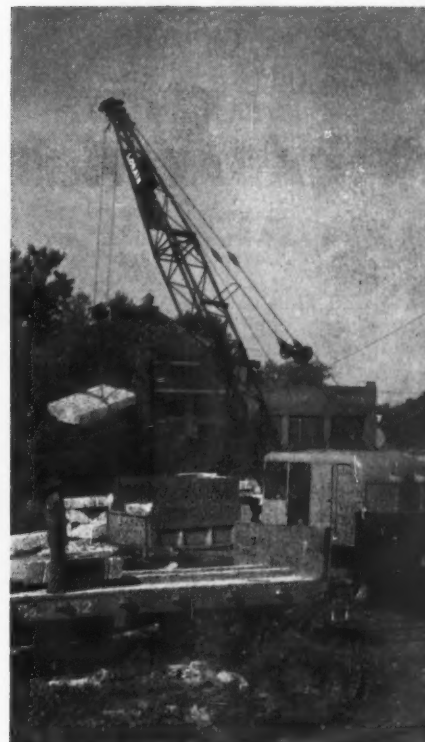
MOLDS fall on this 100-foot conveyor with an impact of 5000 pounds. Several molds may be dumped over at the same time.



STEEL SCRAP is moved from the slitter to the scrap pit with this feeder. A dial controls flow rate.



LIFTING an eight-ton block of sandstone from the quarry is one of the jobs done by a mobile crane. Crane travels on highway between quarries.



LOADING blocks onto a railroad car is another job done by crane.

Stone handling has been speeded up as . . .

Crane Commutes to the Job

SANDSTONE QUARRYING is going modern.

The blocks are still quarried as big as they have been for centuries but now streamlined handling and construction machinery does the job.

For example, Cleveland Quarries Company in South Amherst, Ohio, has started using mobile cranes to raise the huge sandstone blocks from the quarry floor. This is the most basic operation in quarrying, and any improvement in the handling job here means big savings.

Claire Gauman, general superintendent, pointed out that the switch to Lorain cranes, manufactured by The Thew Shovel Company, eliminated one complete operation. This was the work involved in dismantling and reassembling a derrick whenever the work location changed.

"Using a mobile crane," says Gauman, "all we have to do is drive it from place to place."

Then he pointed out, "Add the savings in manpower

from being able to reduce the number of men on work gangs, and the fact that a crane drives nine miles under its own power between our five quarries—and we wonder why we didn't switch to cranes sooner."

The cranes' mobility allows them to be used for many handling jobs other than sandstone lifting. They shuttle between the quarries and the fabricating mill, taking on whatever handling jobs are available. For example, they lift the sandstone blocks (average weight, three tons) out of trucks and load them onto railroad cars for shipment.

Since these cranes have pneumatic tires and are self-propelled, over-the-road travel is no problem in moving from job to job. Also, their rear counterweight can be removed easily and carried separately to reduce the weight of the vehicle for highway or soft ground travel. The boom, hook block, and outrigger beams may also be removed if travel weight must be reduced even more.

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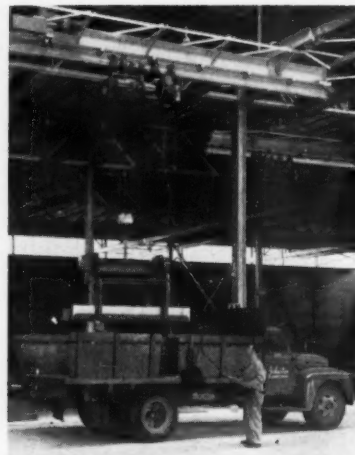
Quality Industrial Batteries . . .

Originators of the Piggy-Back Charger

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RECEIVING and shipping are both handled indoors by overhead cranes.



Overhead handling means . . .

Close-to-Storage Shipping

NORMAL WAREHOUSING problems—receiving, storing, shipping—are doubled when your product is steel. Its weight and size create their own special difficulties.

At the Wilkinson Co. in Vancouver, B.C., an overhead handling system ties together space, time, and manpower for efficient steel warehousing. It's done by spacing out seven long-span cranes that cover the 103,000 square foot building. It enables 20 men to handle 1000 tons a month.

Almost all steel comes in on railroad cars. They enter the building on a spur along one side, making it possible to spot six cars under cover at once. Then the cranes, manufactured by American Monorail, unload the cars.

Storage areas include five 50-foot bays and one 90-foot bay. In the 90-foot bay there are two 45-foot, five-ton capacity cranes directly interlocking. They can be operated individually or, when interlocked, as a 90-foot crane that covers the length of the building.

Every storage area is no more than 300 feet away from the rail siding. The cranes, operated from the floor by pushbutton, use spe-

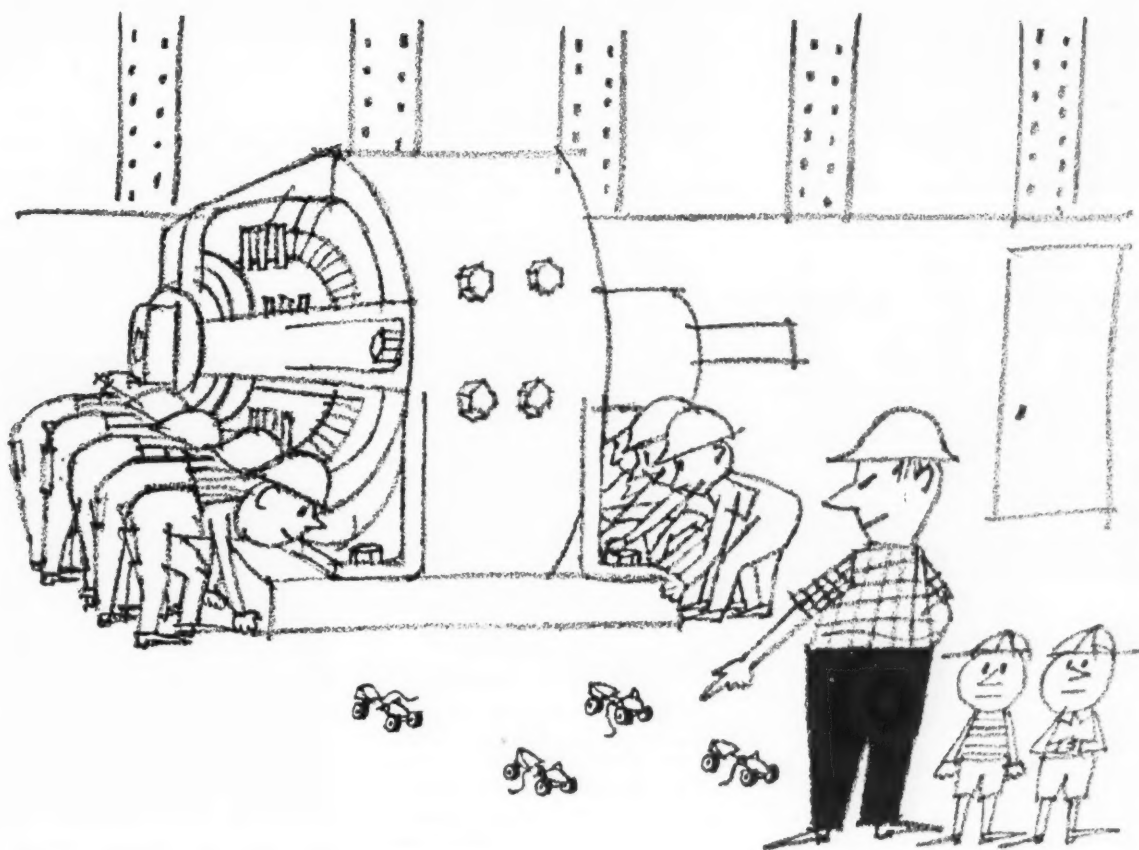
cial grabs and slings to unload the steel. The three-and five-ton cranes are equipped with power drive for both bridge and hoist operation. Hoist carriers move horizontally with Monotractor units. Hoists for the two-ton cranes are moved across the bridge by hand. The steel is stored in racks placed in sleeves set in the concrete floor. If more ground level storage is needed, the racks can be removed.

Shipping is done from the center of the building, in a 40-foot aisle that provides parking and driving space for three rows of trucks. Trucks being loaded in side lanes leave the center aisle open for movement in and out of the building. There are no standard truck docks for receiving or loading in the warehouse.

Since all shipping is done from the center aisle, all material stored in the bays is no more than 150 feet away from shipment. Also, fast moving items are stored closer to the center aisle than slow moving items. Careful spotting of cars to be unloaded and trucks to be loaded allows the men to handle material with very little transfer of loads from one bay to another.

MATERIAL HANDLING ENGINEERING

one
way
to move
a
generator...



There are other ways. Much safer, surer, much simpler. Roebling Wire Rope Slings, for example. A complete line designed to meet materials-handling needs in every respect.

So complete, in fact, that the standard Roebling Slings fill a 48-page book. They are made in a wide range of sizes and types, available with a variety of end attachments.

Available, too, is Roebling's Sling Engineering Department; ready to analyze your special lifting needs, and design and build special slings to do the job.

In any case, you'll find Roebling Slings:

All-Purpose, Roegal® Cable-Laid and Flat-weave are made for steady service and stability under load. Your Roebling salesman or distributor knows *all* about Roebling Slings. Ask him about them.

When sending for the Roebling Wire Rope Sling catalog, the address is: Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey. Ask for A-938. Thank you.

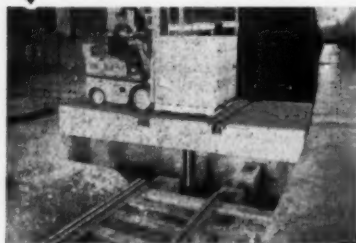
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Branch Offices in Principal Cities
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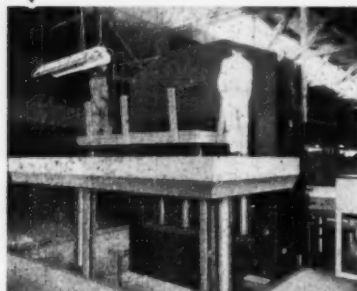
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to speed plant traffic



↓ **LOWER A TRUCK**
for faster loading and unloading



↓ **FEED A MACHINE**
with greater economy and efficiency



LEVELATOR LIFTS

handle heavy loads at lower cost

Operating on economical oil-hydraulic power, Rotary Levelator Lifts can be used wherever heavy objects must be raised or lowered. Standard models with 6,000 and 12,000-lb. capacities are designed for a wide variety of uses and are stocked for immediate delivery. Special Levelator Lifts in any capacity to several hundred thousand pounds can be engineered to your requirements. Simplicity of design and operating mechanism makes installation easy and practically eliminates any maintenance expense.

Write for Catalog RE-203



LEVELATOR LIFTS

Manufactured by

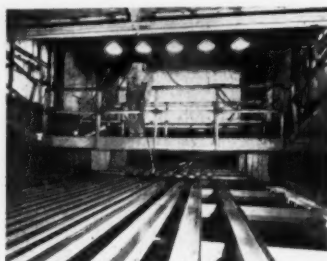
ROTARY LIFT COMPANY

Division of Dover Corporation
1052 Kentucky, Memphis 2, Tenn.
Canadian plant at Chatham, Ontario

Circle 122 on Reader Service Card

\$ Conveyor Speeds Steel Through Sprayer

A king-size, conveyorized spray unit, capable of coating over 200 tons of mixed structural steel during an 8-hour day has been in-

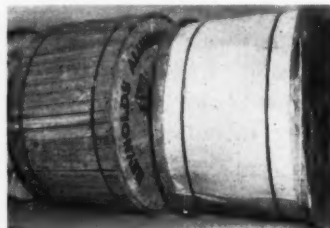


stalled at the R. C. Mahon Co. of Detroit. The unit moves steel economically, painting it en-route to the yard. For example, it can process a 52-ton girder, 130 feet long, in about 30 minutes, a savings of 2½ hours. The primer coat covers better because 65-pound air pressure is used to atomize the paint from spray guns. End of the conveyor can be extended to run steel the length of the storage or direct transfer to railroad cars.

Circle 196 on Reader Service Card

\$ Less Weight In Cable Reel Package

Cable reel packaging has been introduced by Reynolds Metals Co. It is shown at right alongside a reel with the packing previously used and still available on request. The new packaging offers cus-



tomers less handling weight, faster preparation for use, less packaging disposal, but equal protection. A wrap of resilient padding and an overwrap of plywood inside the reel flanges are

used. The padding is of a fibrous material one inch thick with an adherent backing of moisture resistant kraft paper. The plywood is laminated on both sides.

Circle 197 on Reader Service Card

\$ Conveyors Reduce Shipping Costs

Installation of Oliver-Farquhar power belt and gravity conveyors has increased efficiency in shipping department operations at the Warren Webster & Co. Overtime man hours have been eliminated; order assembly has been improved; and inventory control is now a look and see proposition. The company reports savings up to 65 per cent, with lessened employee-fatigue and improved customer service. Two single line conveyor systems were installed.



Employees are assigned stations, and as they assemble their portion of an order, they place it on the line. When the cartons reach the end of the powered conveyor, they move directly onto roll free gravity sections, delivered within easy reach of the order checker. He checks them against his tally sheet, stamps and labels them. The cartons then move by gravity onto a booster power belt conveyor for delivery to loading dock level. Here the cartons again move onto gravity sections which deliver the boxes right into the waiting truck. Circle 198 on Reader Service Card

\$ Dunnage Bags Keep Marble Slabs Intact

For long distance shipment, Brace-Fast dunnage bags, inflated to 5 pounds pressure, hold facing stacks of marble slabs firmly in place at ends of a box car. A 6



x 9 foot slab three inches thick weighs a ton or more. Shipments from the Vermont Marble Co. with this pneumatic support has reduced labor and material cost from oldstyle wooden bracing by as much as 75 percent. **Damages in transit have been cut 100 percent.** The dunnage bags are made by the New York Rubber Corp. **Circle 199 on Reader Service Card**

\$ Unitizing Reduces Handling Costs

A sharp reduction in handling costs of non-ferrous ingots has resulted at the Federated Metals



Div. of American Smelting and Refining Co. By unitizing ingots with Acme steel strapping, **loading time has been reduced 50%.** Customers have reported unloading cost savings as high as 75%. Formerly, the ingots were stacked loosely on skids and loaded into box car cars by hand and unloaded at their destination the same way. The heavy-duty strapping is tensioned by an Acme Steel pneumatic stretcher. A rotary type gripping dog provides continuous take-up and permits use of strapping directly from the coil, eliminating waste.

Circle 200 on Reader Service Card MAY, 1959

Cost-cutting **FACTS & IDEAS** *worth thousands of dollars!*



Here . . . at your fingertips . . . are the dollar-and-space-saving facts about handling unit loads in narrow aisles. Learn how you can store more goods in your present warehouse. Increase capacity as much as 50% . . . make new floor space more productive with narrow aisles. This new 24 page reference book contains complete specifications of Raymond hydraulic and electric pallet handling trucks for every size and type of operation. Profusely illustrated. Send for your **FREE** copy today!

RAYMOND

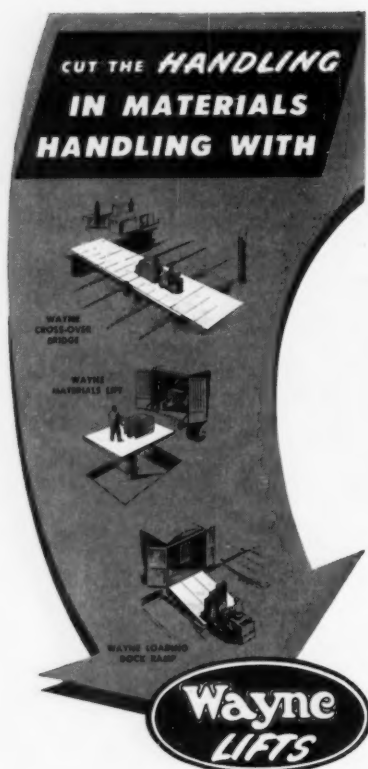
FREE
"Pallet Handling
in Narrow
RAYMOND Aisles"

The RAYMOND CORPORATION

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BOOST PRODUCTIVE MAN HOURS SAVE TIME, LABOR, DOLLARS

WAYNE TRUCK LEVELERS

can cut loading time by 75%. Ramp style lift installed at foot of dock, truck backs into bay, rear wheels are raised to bring truck bed flush with dock.

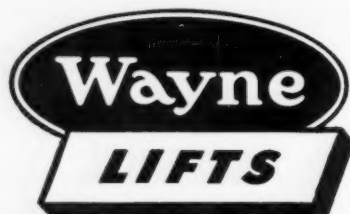
WAYNE PLATFORM LIFTS

speed loading where no dock is available, simplify inventory stocking. Can be adapted to unusual handling problems. Available in single and double post types made to fit specifications.

WAYNE CROSS-OVER BRIDGES

reduce costly and wasteful hauling, speed traffic and do away with ramps between buildings. Available to suit every need—single and double bascule, turntable and straight lift platforms.

Let Wayne LIFTronics answer your materials handling problems . . . there's a Wayne Industrial Lift for every purpose. Write for Technical details and catalogs to The Wayne Pump Company, Industrial Division, Fort Wayne 4, Indiana—Div. Symington Wayne Corp.



Circle 145 on Reader Service Card

CFTMA Announces Planbook

HERE'S A "MUST" for the material handling engineer's bookshelf.

The Caster & Floor Truck Manufacturers' Association has recently published a "Caster & Floor Truck Engineering & Purchasing Planbook." According to W. R. Thomas, president of CFTMA, it is the most authoritative book available on this subject. Edited by Val Laughner & Associates, the book is based on the experiences of the manufacturers who are members of CFTMA.

The "Caster & Floor Truck Engineering & Purchasing Planbook" has 124 pages with stapled binding. It is fully illustrated in color with photographs, charts, and graphs. The book is divided into sections that discuss different basic types of equipment. Here are some of the categories:

Importance of Efficient Handling—Tells where material handling fits into an operation, how to determine what your requirements are, how to tackle material handling problems.

Wheel Selection and Use—Explains what wheels do, how they are used. Kinds of bearings available. Wheel standards that have been set by the industry.

Casters—How to classify casters; caster standards.

When To Consider Two-Wheel Hand Trucks—General classes and styles; attachments, accessories. Good safety practices and industry standards.

Platform Trucks for Efficient Handling—How to select gears and framing. Other points to check. Special trucks in this category.

Institutional Floor Trucks—Applications for this kind of equipment. **Towline Platform Trucks and Trailers**—How towline conveying works, how it is used. Basic lines of the towline truck.

Trailer Trucks and Tractor Trailers—Covers industrial trailers,



couplings, tractors. How to figure the cost of operation.

Skid Platforms and Equipment for Handling Them—An equipment study related to this kind of handling.

Make Floor Trucks and Castered Equipment Pay Off—Case studies in manufacturing, warehousing, and freight terminal operations.

How to Get a Copy

The "Caster & Floor Truck Engineering & Purchasing Planbook" sells for \$3.75 prepaid, \$4.00 if invoiced. You can get a copy from the Caster & Floor Truck Manufacturers' Association, 27 E. Monroe, Chicago 3, Ill., after the June 1 publishing date. Or you can order a copy from CFTMA members in their booths at the 1959 MHI Exposition. Any of the companies listed below will be glad to help you.

Aerol Co. Inc.; Albion Industries, Inc.; American Hard Rubber Co., Div. Amerace Corp.; The American Pulley Co.; The Bassick Co.; Bond Foundry & Machine Co.; The Colson Corp.; Comar Products, Inc.; Darnell Corp. Ltd.; Disogrin Industries, Inc.; Divine Brothers, Inc.; The Fairbanks Co.; Faultless Caster Corp.; Firestone Industrial Products Co.; The General Metal Wheel Co.; Grand Specialties Co.; Hall & Sons, Inc.; Hamilton Caster & Mfg. Co.; Hawkeye Rubber Manufacturing Co.; Ironbound Box & Lumber Co.; Jakes Foundry Co.; Jarvis & Jarvis, Inc.; Lansing Co.; Lewis-Shepard Products, Inc.; M-H Equipment Co.; Meadows Metal Products Co. Inc.; The Nagel-Chase Mfg. Co.; Nutting Truck and Caster Co.; The Ohio Rubber Co.; Ohio Galvanizing & Mfg. Co.; Orangeville Manufacturing Co.; The Rapids-Standard Co. Inc.; S. I. Handling Systems, Inc.; Saginaw Products Corp.; Thomas Truck & Caster Co.; Vulcanized Rubber & Plastics Co.; Western Wheelbarrow Mfg. Co.

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WIRE TAINER

the sensible, convenient way to handle Stock
STACKING FOLDING



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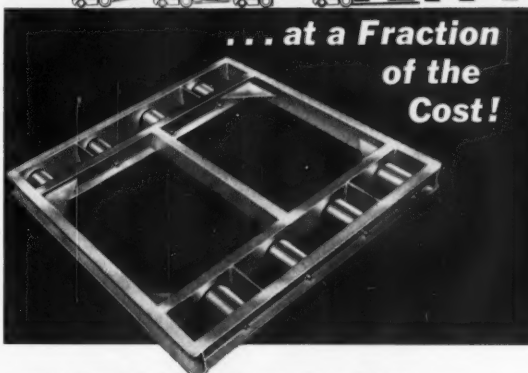
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Power Truck MOBILITY



... at a Fraction
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MAGLINER MAGNESIUM PALLET DOLLIES free-up your power equipment for the big jobs and longer hauls. Put a Magliner under every pallet load and its ready to roll... quickly, easily, *economically*. A small investment that pays big dividends, Magliners are the practical solution to loading bottlenecks... high loading costs. Made of magnesium, Magliner pallet dollies are easily handled by one man... carry loads up to 4,000 lbs.,

safely, smoothly on large 3 1/4" rollers. Tough, rugged, welded magnesium construction. Dependable, long-life service! 14 standard models and sizes.



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P&H "PROFIT-LIFTS"



ONE-MAN OPERATION

**P&H 155A-WC WAGON CRANE—
VERSATILE TOOL FOR MATERIALS
HANDLING AND MAINTENANCE**

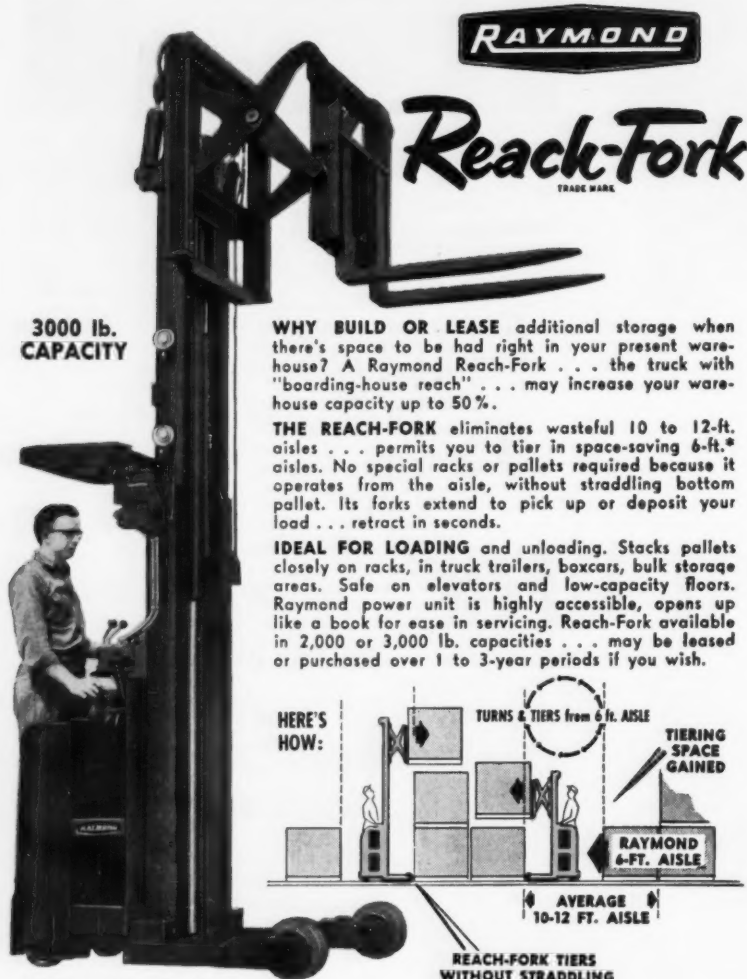
Profit-Lifts are the end product of advanced P&H design and engineering features that result in higher production, lower operating cost—*more net profit* for P&H users. **Truck cranes** from 10 to 80 tons—**crawler cranes** from 1/2 to 3 1/2 cu. yds. All feature unusual P&H flexibility with quick on-the-job changeover of front-end attachments. See your P&H dealer for all of the profitable facts or write: Dept. 536A, Harnischfeger Corporation, Milwaukee 46, Wisconsin.

HARNISCHFEGER

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**The truck with
"boarding house reach"
INCREASES WAREHOUSE CAPACITY**

... as much as 50%

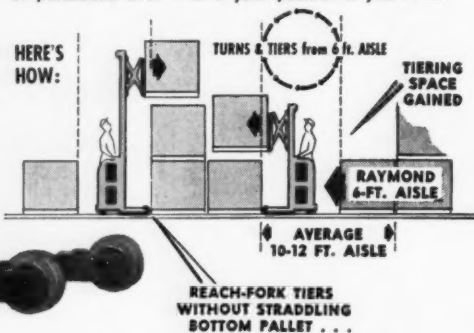


MODEL E3RT Reach-Fork
Electric Tying Truck. Tele-
scopic model, 3,000 lb. cap.

WHY BUILD OR LEASE additional storage when there's space to be had right in your present warehouse? A Raymond Reach-Fork . . . the truck with "boarding-house reach" . . . may increase your warehouse capacity up to 50%.

THE REACH-FORK eliminates wasteful 10 to 12-ft. aisles . . . permits you to tier in space-saving 6-ft.* aisles. No special racks or pallets required because it operates from the aisle, without straddling bottom pallet. Its forks extend to pick up or deposit your load . . . retract in seconds.

IDEAL FOR LOADING and unloading. Stacks pallets closely on racks, in truck trailers, boxcars, bulk storage areas. Safe on elevators and low-capacity floors. Raymond power unit is highly accessible, opens up like a book for ease in servicing. Reach-Fork available in 2,000 or 3,000 lb. capacities . . . may be leased or purchased over 1 to 3-year periods if you wish.



*For exact aisle width, ask Raymond representative to survey your operation.

THE RAYMOND CORPORATION

3331 Madison St., Greene, N.Y.

Please send Bulletin on Raymond Reach-Fork. I am interested in:

- ☐ 2,000 lb. cap. Reach-Fork.
☐ 3,000 lb. cap. Reach-Fork.
☐ Have a representative call.

**MAIL
COUPON
TODAY**

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____

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**CALENDAR
of
EVENTS**

May 3-13
Mechanical Handling Exhibition
Earls Court
London, England

May 4-8
National Industrial Production Show
of Canada
Exhibition Park
Toronto

May 14-16
AIEE 10th Annual National Conference
Biltmore Hotel
Atlanta

May 25-28
Design Engineering Show
Convention Hall
Philadelphia

May 27
Packaging Association of Canada
King Edward Hotel
Toronto

June 9-12
Material Handling Institute
1959 Exposition
Public Auditorium
Cleveland

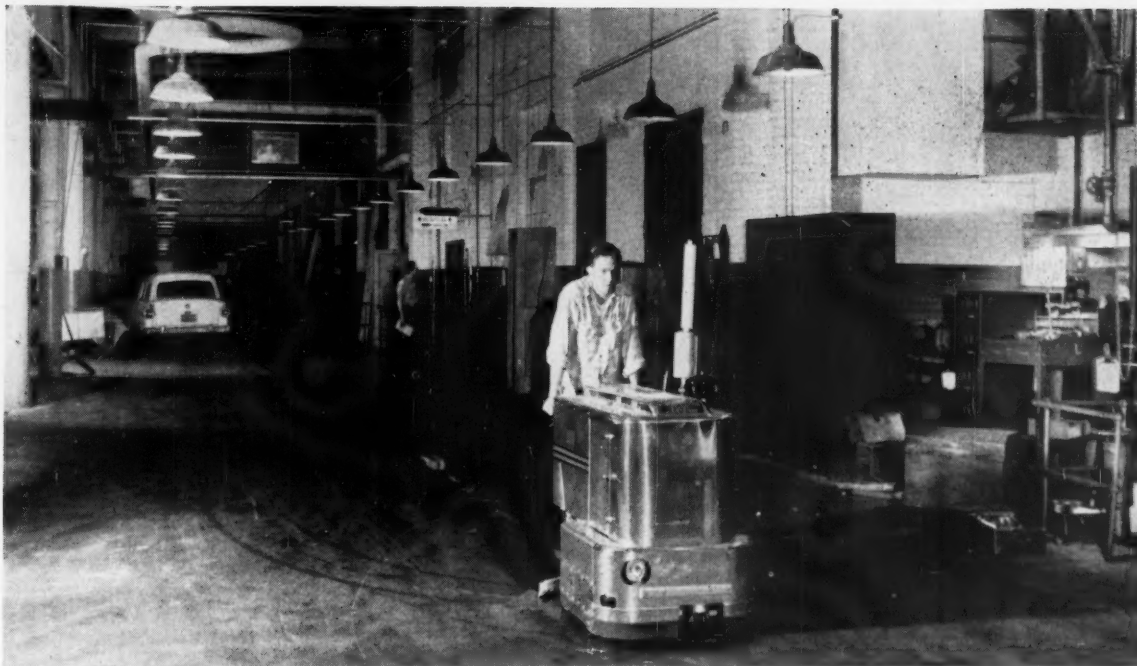
June 14-27
Sixth Annual Material Handling
Training Course
Industrial Management Center
Lake Placid, New York

June 16-17
Cornell University Industrial Engineering Seminars
Ithaca, New York

October 10-13
26th CEMA Annual Meeting
Grand Hotel
Point Clear, Alabama

November 16-20
ASME Automation Show & Conference on Material Handling
Trade Show Building
New York

November 17-20
Packaging Machinery Manufacturers
Institute Show
New York Coliseum
New York



Self-propelled ClarkeAmatic floor maintainer, powered by air-cooled Wisconsin engine, combines scrubber and vacuum pick-up to assure clean, safe and sanitary floors up to 28,200 sq. ft. per hour—twenty times faster than ordinary mopping.

Clarke Floor Machine Company reports

"LESS FUEL, FUMES AND MAINTENANCE" WITH WISCONSIN ENGINES AND ZENITH LPG CARBURETORS

This operator is cleaning a quick path to important economy—with complete safety! The Zenith* LP-Gas Carburetion System is guarded by hydrostatic pressure relief valves and self-sealing couplings. When ignition switch is off or when engine stalls, the Zenith UL Approved vacuum switch assures the cut off of fuel supply.

Zenith carburetors are readily calibrated so that all objectionable exhaust fumes are eliminated. The LP-Gas burns clean with no lead deposits and minimum of carbon deposits. Meanwhile dilution of engine lubricants is maintained at an *absolute minimum*. Benefits include three to four times longer oil life, up to twice the number of hours between major engine overhauls, and phenomenal savings in fuel costs.

Wisconsin Motor Corporation offers Zenith LP-Gas Carburetion Systems as original equipment on all its engines from 3 to 56 H.P. And for their conversion kits Zenith is again the choice of Wisconsin, the leader in the field of heavy duty air-cooled engines.

Original equipment and conversion units are available to manufacturers and owners of all makes of lift trucks, tractors, motor vehicles, and other combustion engine applications. For low cost and complete details, contact your local dealer or address: LP-Gas Service Department, Zenith Carburetor Division, 696 Hart Avenue, Detroit 14, Michigan.

*REG. U.S. PAT. OFF.



Zenith, the oldest and most experienced manufacturer of carburetors for industrial engines, has applied its practical knowledge to LP-Gas systems of outstanding efficiency and economy. If you are considering the advantages of LP-Gas carburetion you are invited to consult with the Zenith specialists.

Zenith Carburetor Division



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*"SCOTCH" is a registered trademark for the pressure-sensitive adhesive tapes of 3M Co., St. Paul 6, Minn. Export: 99 Park Ave., New York 16. Canada: London, Ontario.

... WHERE RESEARCH IS THE KEY TO TOMORROW



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MATERIAL HANDLING ENGINEERING

[illegible]

"SCOTCH" BRAND TAPES
TAPE-O-RAMA Contest
135 prizes...write for details
FEBRUARY 1—JUNE 30, 1959



PACKAGING AND

SHIPPING SECTION

TABLE OF CONTENTS

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Biggest Order Saved by Outside Help	92
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PACKAGING ENGINEERING . SHIPPING



URETHANE FOAM is one of the newest developments in cushioning. It may be hard or soft, pre-shaped or in liquid form that foams in place to fit the product snugly. Here it's poured into missile nose cone part.

- Regardless of the product, there's a cushioning material to protect it.
- Picking the right material is often more complicated than it looks.
- The wrong material will either waste money, cause damage, or both.

Cushioning

THERE ARE GREAT DIFFERENCES in cushioning materials, and you should select them as carefully as you select containers. Under-cushioning may cause expensive damage claims. Over-cushioning is wasteful.

Characteristics:

Stiffness: Perhaps the most important characteristic in cushioning materials. Any material must be compressable to absorb shock. How compressable depends on the product and type of shock it will encounter.

Resilience: The ability of the material to bounce back to its original shape after impact. A non-resilient material is unsuitable for repeated impacts, it creates free-moving space.

Compression set: Similar to resilience, it's the material's ability to hold its shape after being compressed for an extended time. Some materials hold up longer than others; how long it must last depends on how long the product will remain packaged.

Weight: Not important as far as protection is concerned, but certainly one of the most important considerations in figuring shipping costs.

Corrosion factor: Some materials contain traces of acids, chemicals, etc. They might damage delicate products, be all right for others.



RUBBERIZED CURLED HAIR is lightweight and can absorb severe shocks. You can buy it molded into special shapes to fit any product.



CREPED KRAFT (above) protects well, may be VCI treated to stop rust. Greaseproof (below) it's approved for military packaging.



FOAM RUBBER pads are made of reclaimed scrap rubber. They have excellent damping qualities, and are available in many odd shapes.

for Those Problem Jobs

Stability: The material's ability to resist deteriorating with age, or in extreme climates. Again, how long it has to hold up depends on your needs.

Moisture absorption: Tendency of the material to soak up water, usually from the air. Almost always an undesirable characteristic. Moisture may damage the product, or cause the cushioning to deteriorate.

Abrasiveness: Some otherwise excellent cushioning materials are abrasive, cause tiny scratches on polished surfaces. If you use them, make sure the product is well wrapped.

Fungus resistance: Mold, mildew, etc. grow fast in some conditions. If your packages will be susceptible, make sure the cushioning is treated to resist them.

Dusting: Some cushioning materials give off fine dust particles. Avoid them if your product can be damaged by dust of any kind.

Low temperature performance: A material that is perfectly good in normal climate may lose its cushioning when it gets cold. Usually it gets brittle, but other defects may also develop. The same is true of extreme heat and humidity. If your product is likely to encounter extreme conditions, check the performance of your cushioning material first.

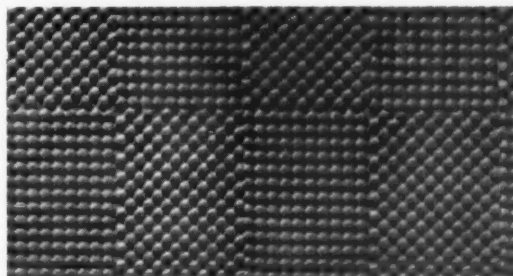
For their cooperation in this article, MHE thanks the following companies: American Latex Products Corp.; E. I. Du Pont de Nemours & Co.; Janesville Cotton Mills; Jiffy Mfg. Co.; Kimberly-Clark Corp.; Ludlow Papers, Inc.; and Vanant Co., Inc.



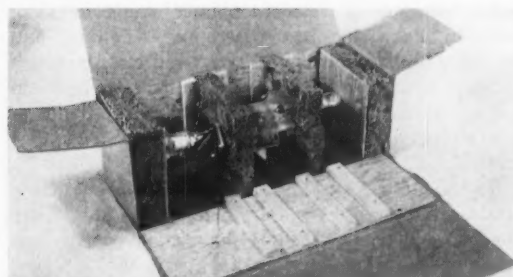
CELLULOSE WADDING is soft, lightweight, and easy to work with. It comes in rolls, sheets, or pre-cut shapes. In addition to its cushioning properties it improves package looks. Also available waterproof.



FIBRE LINERBOARD has been used successfully for windshields, mirrors, electronic instruments, etc. It has to be specially designed for your product, with slots and peaks spaced to give the most protection.



PAPER PADS consist of plies of processed, rugated kraft paper, or facial tissue for delicate surfaces. They're flexible, resilient, easy to use. Macerated paper is also available. Both come in unlimited sizes.



MAKE-YOUR-OWN CUSHIONING MATERIAL consists of cut-up scrap corrugated, pressed into pads. There are machines available to cut up the corrugated and process it into cushioning pads suitable for many uses.



FIRST STEP in packaging cots. The tubular frame, mattress, head rest, and casters are sealed in a case liner made of heavy waterproof paper. Then the lid is put in position and the completed box is nailed shut.



FINISHED PACKAGES as approved by Navy inspector for overseas shipment. The complete order of 480 cots was packed by contract packager at half what it would have cost the company to do its own packaging.

Packaging Was A Bottleneck . . .

Until they called in a contract packager

THE LARGEST ORDER EVER AWARDED in its field was almost too big for The Bomgardner Mfg. Co. The bottleneck: packaging. It took the help of a contract packager to get the job done on time.

Bomgardner makes stretchers and ambulance cots for both civilian and military use. Although a leader in its field, it is by its own admission a small firm. When the Military Medical Procurement Agency awarded the company a contract for 480 cots, complete with mattresses and accessories, one of the stipulations was that all the cots had to be delivered to the Navy, packaged according to Mil Specs, no later than December 31.

The production department was confident it could make the cots on time. But packaging was something else again. The cots had to be packed in wooden boxes, with special waterproof inner wraps, for shipment to Pakistan. Boxes, wrappers, nailing, and stenciling all had to meet military requirements, which are strict and often hard to understand. With limited packaging facilities, company officials decided not to take a chance. Instead they turned the job over to a contract packager.

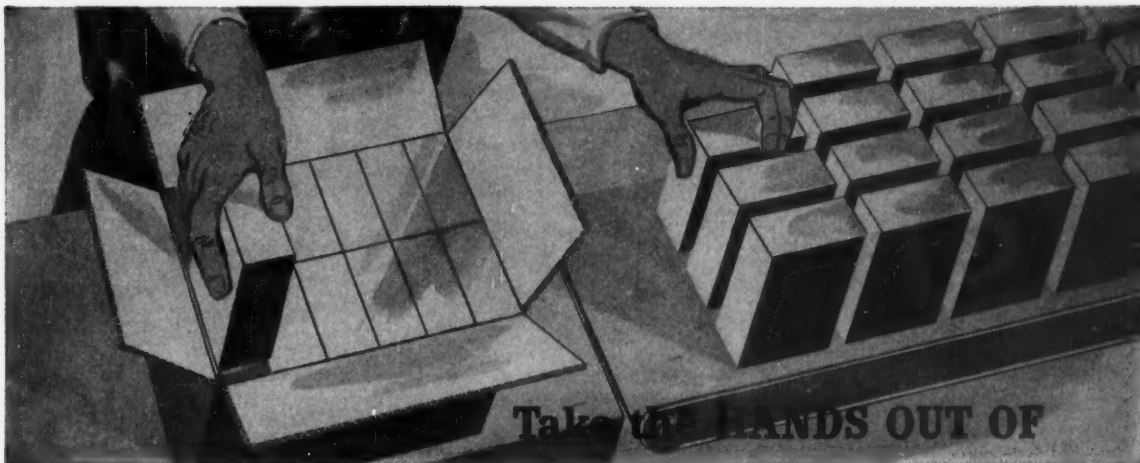
Representatives of Bomgardner and the packaging firm carefully went over every detail of the job. They drew up a delivery schedule that would put the last of the order in the Navy's hands just under the wire, December 31.

Engineers at the packaging firm were as familiar with the Mil Specs as with their own names. But even with their know-how they ran into trouble on this job. One headache was the size of the cots. As

they came off Bomgardner's production line they took up so much space that they threatened to interfere with other orders. To ease the space shortage the packager agreed to take the first half of the cots to its own plant as soon as they had passed inspection by the office of the Inspector of Naval Material. On November 15 the first 240 cots passed inspection, and were taken in two vans to the packaging plant. Then the trouble began. With 240 cots, 240 mattresses, and 240 empty boxes in the shop, the packagers almost ran out of space. Other products had to be moved around to make room for them.

Another near log jam occurred toward the end of December. With time running out and holidays cutting into production and packaging time, deliveries were behind schedule. The day before Christmas the Naval inspector worked well into the evening to clear the last of the cots at the Bomgardner plant. The following Monday, December 29, the packager had them and went to work. With crews working around the clock, the last of the cots got final clearance just hours before the deadline.

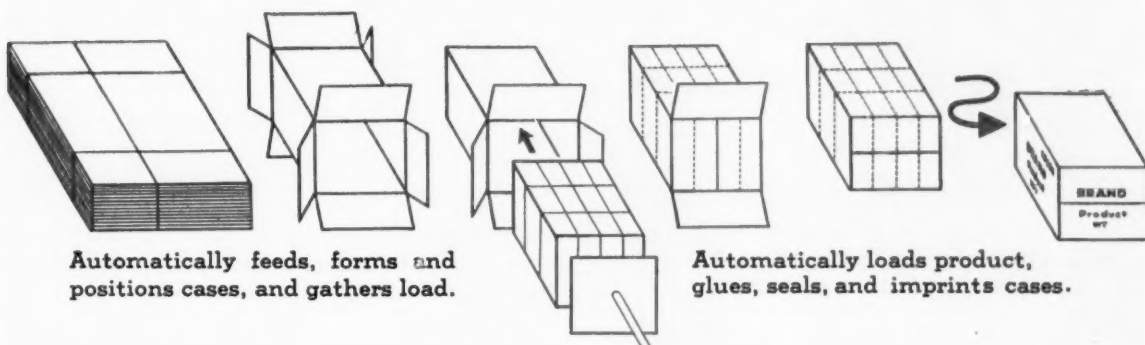
H. P. Bomgardner, president of the company, sums up the job: "We could have tried to get the order out ourselves," says Bomgardner, "but we would have been running the risk of a penalty for being late. Furthermore, even if we delivered on time, it would have cost us twice as much to do the job ourselves. We weren't equipped for it. By cooperating with our contract packager, Nuckley Packaging Co., we were in a position to compete with larger companies for orders we would otherwise have to pass up."



Product Handling

Let **Packomatic**® equipment do any or all
T.M. Reg. U. S. Pat. Off.

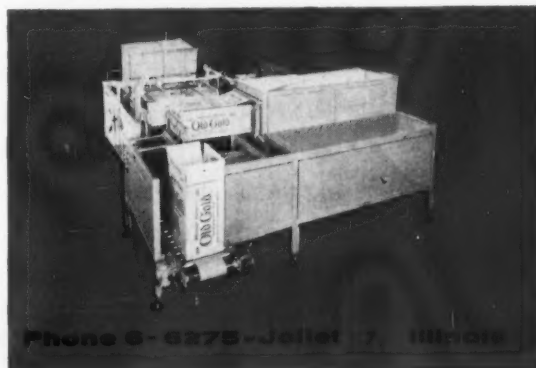
your casing operations **AUTOMATICALLY:**



For casing round, square, rectangular, or free-form packages of virtually any size.

If you employ even one person per shift to hand-form cases, or to hand-pack, hand-seal or hand-imprint them, then it can pay you to install Packomatic equipment. And if you employ two or more people the savings can increase proportionately. Even a **complete** automated Packomatic line requires only a minute or two of attention at infrequent intervals to match the output of a dozen pair of hands. And in addition to reducing your direct labor production costs Packomatic can, by utilizing end-opening shipping cases, reduce paper-board costs up to 25%. And mechanically end loaded cases are stronger too, because the flaps give added resistance to weight and shock. In addition, they stack better because their uniformly flat sides enables keying of pallet loads. Write, wire or phone us for facts on how to reduce your casing costs.

FOR EXAMPLE: This Packomatic machine at the P. Lorillard Co. automatically forms and positions cases, end-loads regular or king-size cartons of Old Gold cigarettes (60 cartons per case) and up-ends cases for sealing — at the rate of 400 cartons per minute, or nearly 5 million smokes per hour.



PACKOMATICS include Case Sealers • Case Opener-Loaders • Case Packer-Glivers • Case Imprinters • Bale Sealers • Automatic Equipment for Shelf Carton Making, Feeding, Filling and Closing • Round Paper Can Mfg. Equipment

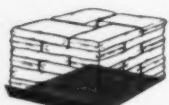
J. L. FERGUSON COMPANY - Box 1226

Phone 6-6275-Joliet 7, Illinois

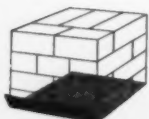
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Reduce pallet costs 90% with Mead fiberboard pallets!



Poke-Pak® for bags



Glide-Pak® for boxes

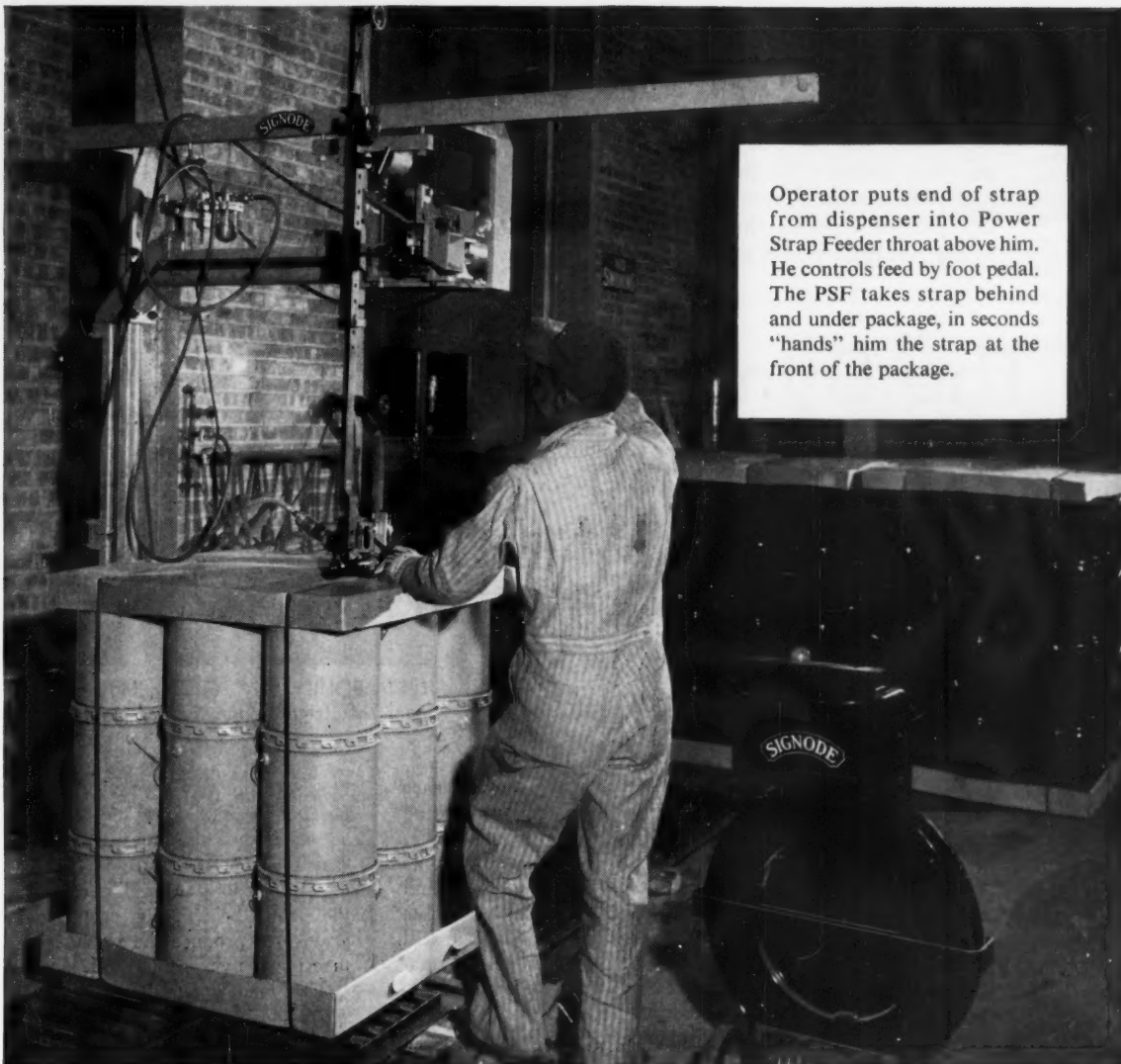
All pallets do the same job—but Mead Glide-Pak and Poke-Pak expendable pallets do the job at only $\frac{1}{9}$ the cost! They're made of tough, hardwood fiberboard. Can be used again and again! Easily hold the heaviest loads. And they're truly expendable. Need no deposits from customers. Completely eliminate return headaches, freight credits and charge-backs. They save you costly storage space, too. Stack easily in less space than any other pallet. But get complete facts for yourself. Write today for free booklet.

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MEAD
board

THE MEAD CORPORATION
118 West First Street, Dayton, Ohio
Sales Offices: Mead Board Sales,
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Cincinnati, Ohio • Detroit, Michigan
Chicago, Ill. • Boston, Massachusetts

MATERIAL HANDLING ENGINEERING



Operator puts end of strap from dispenser into Power Strap Feeder throat above him. He controls feed by foot pedal. The PSF takes strap behind and under package, in seconds "hands" him the strap at the front of the package.

Simple, low cost way to unitize bulky loads

Cost control can be especially important in packaging big, light loads for shipment—like empty pails. The combination of a low cost Power Strap Feeder, adjustable for package size, with a Signode air-powered strapping tool that quickly tightens the strapping to a pre-set tension does the job for Vulcan Containers, Bellwood, Illinois.

This power feeder and tool combination is winning new and enthusiastic acceptance in nearly every industry.

It is fast. It saves one man on big packages in every case we know of because it eliminates a stand-and-wait helper's job. And it's simple, versatile. Cost: modest—saves enough to pay for itself from the start.



First in steel strapping

*Let a Signode man get you the facts about your application,
or send for more information from:*

SIGNODE STEEL STRAPPING CO.

2618 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide

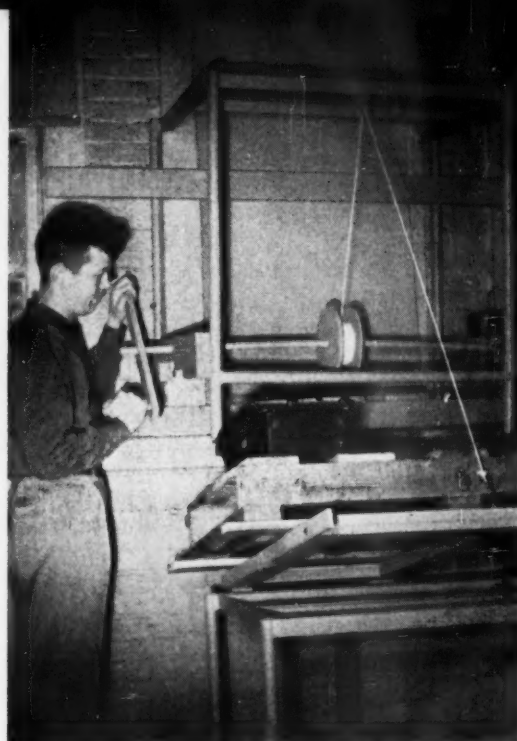
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

Circle 127 on Reader Service Card for more information

Results of research at Purdue University on what happens to packages under impact, what makes them move, and a testing program that's the first of its kind in the packaging and shipping fields.

The Dynamics of Packaging

by James H. Greene and James A. Collier



TEST EQUIPMENT for finding coefficient of friction for typical materials.

THERE WOULD BE very little damage to packages if they wouldn't topple or slide during transit. Therefore package designers should understand the dynamics of packages in motion before they undertake to design a package that will travel safely.

Analysis of Toppling:

Packages have a tendency to

topple when under the influence of acceleration or deceleration forces. How much force it takes to topple a load depends on its weight, the size of its base, and the position and height of its center of gravity. A package will topple when the moment of rotation caused by the force of acceleration ($F' \times L'$) overcomes the moment caused by the weight of the load ($W \times M_1$). See figure 1.

According to Newton's basic laws of physics, every force has an equal opposing force. In this case the toppling force is F . Its equal opposing force F' acts on the load through its center of gravity to produce the previously mentioned moment ($F' \times L'$).

This load will topple if the acceleration is constant long enough for the force F to continue until the center of gravity passes over

	PAPER TOTE PAN	METAL TOTE PAN	WIRE TOTE PAN	PLASTIC TOTE PAN	PAPER CARTON	WOODEN CRATE
Used Wooden Pallet Tested With Grain	.377	.363	.346	.363	.381	.403
New Wooden Pallet Tested With Grain	.339	.360	.338	.302	.424	.329
Used Wooden Pallet Tested Against Grain	.359	.299	.273	.416	.436	.396
New Wooden Pallet Tested Against Grain	.288	.358	.271	.334	.455	.407
Steel Plate Plain	.451	.527	.476	.458	.616	.481
Steel Floorplate Cleated	.298	.604	.344	.406	.553	.421
Paper, Kraft	.334	.298	.255	.491	.457	.379
Steel Pallet	.371	.434	.389	.425	.466	.400
Paperboard	X	X	X	X	.403	X
Wood	X	X	X	X	X	.410
Steel Plate Plain (Cleaned)	X	.245	X	X	X	X

STATIC coefficient of friction for various combinations of carrier bases and container materials. Using methods described the authors arrived at plus or minus .01 with 95 percent confidence.

ABOUT THE AUTHORS: James H. Greene, Ph.D., is Associate Professor of Engineering at Purdue University. James A. Collier, MSIE, is a former research assistant at Purdue, now with the Methods and Time Standards Development and Manufacturing Surveys Unit, Medium Steam Turbine, Generator and Gear Department, General Electric Co.

the axis of rotation R. The moment ($W \times M_2$) induced by the weight W will carry it over. See figure 2.

Heavy loads with large bases and low centers of gravity are less likely to topple than light ones with small bases and high centers of gravity. See figure 3.

To keep from toppling, weight W times distance M must be greater than force F' times distance L' , or MW must exceed $F'L'$ when:

W is the weight of the package.
M is the horizontal distance from the edge of the base to the vertical line through which the center of gravity acts.

L' is the vertical distance from the edge of the base to the center of gravity.

Weight in lbs x accel.
or decel. in ft/sec²

$$F = F' = \frac{32.2 \text{ (accel. due to gravity ft/sec}^2\text{)}}{\text{weight in lbs x accel. or decel. in ft/sec}^2}$$

Note that the package might be stable in one direction, but still topple when turned 90 degrees and its width becomes its length. Be sure to consider both ways.

Finding the center of gravity:
If it's an evenly shaped package with the weight uniformly distributed, the center of the package can be considered the center of gravity. For irregular shapes it's a little harder:

Suspend the package from one point. Then drop a plumb line from the same point and draw a chalk line through the center of the package. Repeat on a different side. Where these two lines intersect, the center of gravity is established.

A package will slip when it receives an acceleration greater than 32.2 times its coefficient of friction. You can figure the critical force at which a load will slip if you know the weight of the load and the value of its coefficient of friction.

NOTE: In figuring slippage we deal only with static coefficient of friction. Dynamic friction is not a limiting factor.

By definition, the static coefficient of friction f is:

$$f = \frac{F}{N}$$

when: F is the force necessary to move the load.

N is the normal force acting on the load, equal and opposite to the gravitational force.

This same formula will also give you the maximum acceleration for a load carried in a horizontal plane:

$$f = \frac{F}{N} = \frac{F}{W} \text{ or } F = fW$$

The force F on the load is determined by the fundamental law of mechanics as:

$$F = \frac{\text{weight x acceleration ft/sec}^2}{32.2 \text{ ft/sec}^2, \text{ acceleration due to gravity}} = \frac{Wa}{32.2}$$

Since there is no other force on the load, the point at which it ceases to accelerate with the carrying surface, or in other words the point of slippage, is easy to figure

(Continued on page 131)

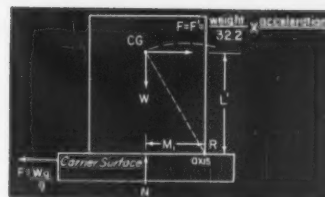


FIGURE 1 — Package topples when $F' \times L'$ is greater than $W \times M$.

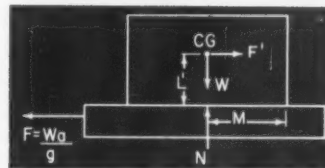


FIGURE 2 — Analysis of a load upset by carrier surface motion.

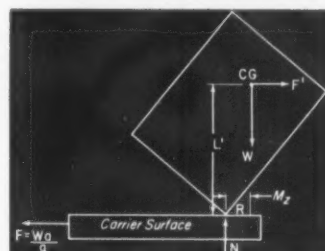


FIGURE 3 — Dynamic force on a low heavy load (more stable).

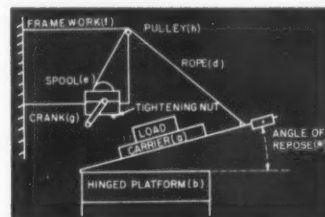


FIGURE 4 — Set-up for testing coeff. of friction (see photo).

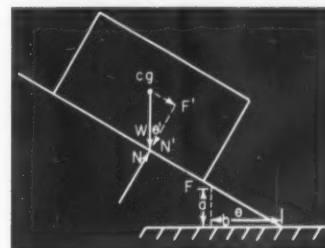
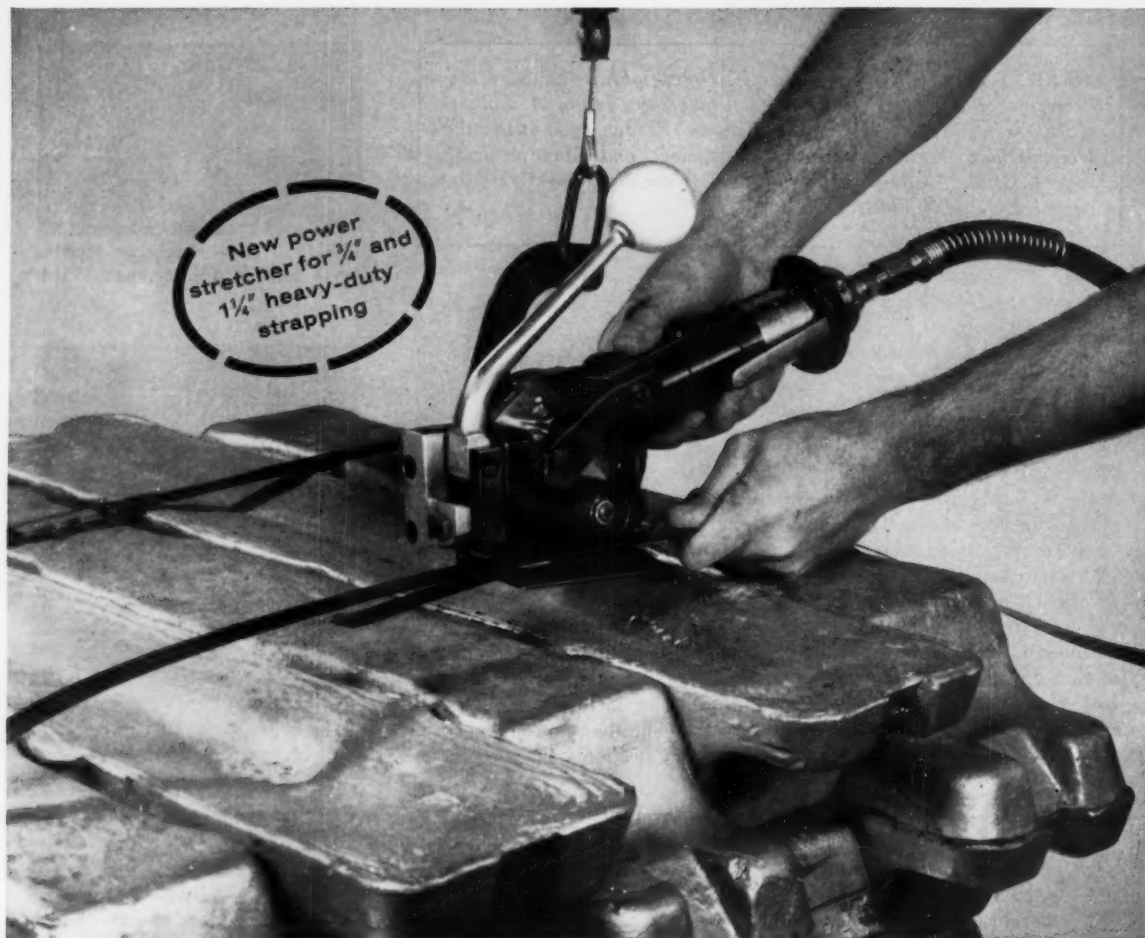


FIGURE 5—Inclined plane analysis used for friction tests.



Another Acme Steel portable power strapping tool . . .

The new B1R pneumatic stretcher

ACME STEEL COMPANY adds still another model to its line of power-actuated, portable strapping tools. This time it's the rugged B1R Pneumatic Stretcher, an all-purpose tool for heavy-duty strapping—but with the accent on light weight and handling ease.

The B1R eliminates waste as it uses strap directly from the coil, features unlimited high-speed take-up and provides greater residual strap tension. Operation is simple: strapping threads easily into the tool, then a touch of the throttle power tensions strapping to predetermined tension. Motor holds tension until sealed joint is made. A forward stroke of the shear lever cuts strap close to the seal. This tool is readily adaptable to many different strapping applications. Mounting brackets and various types of supports are available.

Your Acme Idea Man can demonstrate the money-saving advantages of the B1R Stretcher as it applies to your packaging operations.

Contact your "Acme Idea Man" at the nearest Acme Steel Company office. Or write: Dept. MJU-59, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Ltd., 743 Warden Ave., Toronto 13, Ontario.

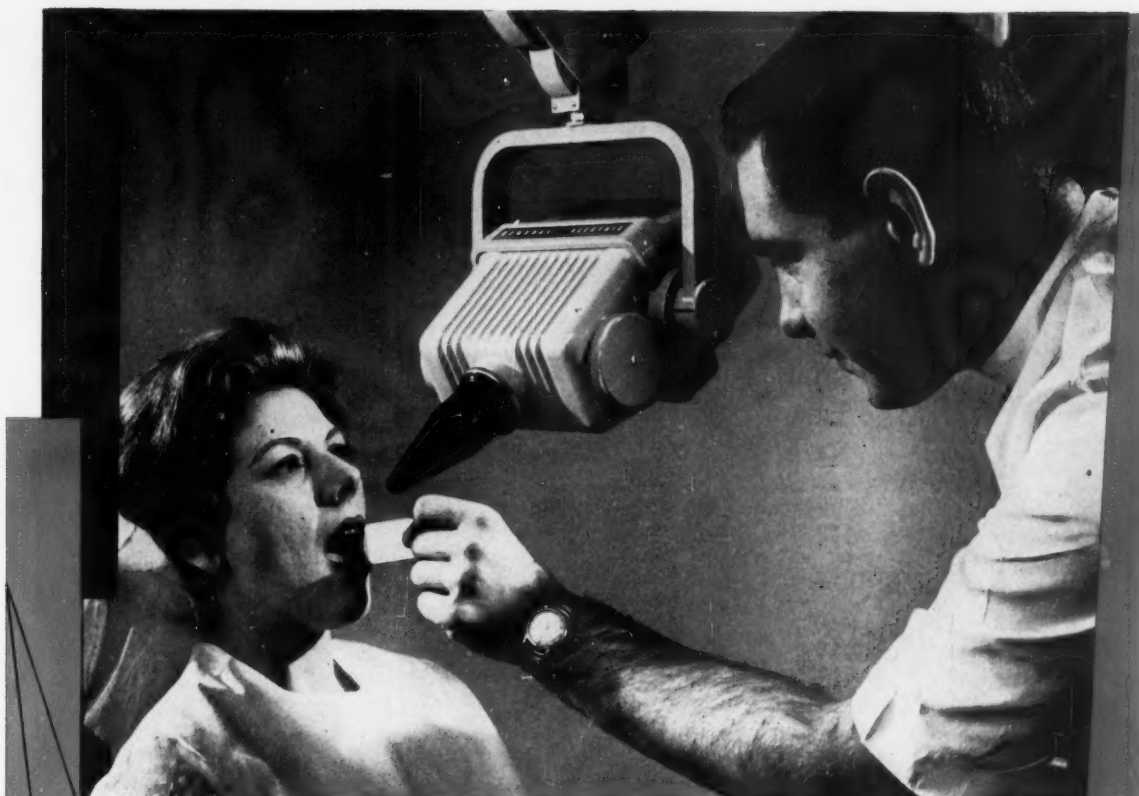
Ask your Acme Idea Man—or write—for free brochure on the new B1R and other Acme Steel powered strapping tools.



STEEL STRAPPING

Circle 2 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING



Does your product cost more than a dental X-Ray film?

You may have had a mouthful of Green Core Tape when you had your last dental X-Ray. The dental X-Ray packets made by Minimax are faced with the finest sealing tape—Green Core Super Standard Sealing Tape.

In this case you'll agree that quality is important. Yet your product undoubtedly is more costly—can you afford not to use the best?

Minimax's operation demands immediate adhesive tack, high adhesive wet strength, permanent bond and purity of adhesive. Doesn't your application require these features to minimize your labor costs and insure your package protection?

If you believe in quality, use Green Core Super Standard Sealing Tape and Reinforced Sealing Tapes in your sealing operations. Test a free sample roll—to see and to use, is to believe.

When tape costs so little, why not use the best?

**GREEN
CORE**
PACKAGING PRODUCTS



MID-STATES GUMMED PAPER DIVISION

MINNESOTA MINING & MANUFACTURING COMPANY

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New York • Syracuse • Boston • Philadelphia • Atlanta • Cleveland • Cincinnati • Kalamazoo • St. Louis • Los Angeles



PACKAGING & SHIPPING IDEA of the month



Insulated Box Was a Sleeper

It waited ten years for the right market application to come along.



SKYTAINER boxes when properly sealed insulate so well that the pre-cooled contents lose only 3 degrees F. in 48 hours, with outside air at 100 degrees F.

THE CONTAINER being carried by the helicopter (above) is the key to a new and successful service by Cali'copters, California helicopter line. With boxes like it, the company offers field-to-consumer air shipment of prime, highly perishable field-ripened fruits and vegetables. But the original container, designed as a household cooler, had to wait ten years until the right market came along for it.

Cali'copters needed lightweight boxes to run the produce from the field to pre-cooling plants, then to air freight terminals without repacking for re-cooling.

Looking for a container that could insulate well and still be light enough for air freight, Cali'copters turned to Ralph L. Butcher, Jr., of Shield Fabricators, Inc. Butcher dusted off the 10-year-old household cooler, and it became Skytainer, an air freight box.

Cali'copters now uses an entire family of these containers, in several sizes. The basic unit is a 1 cu. ft. corrugated box, made of 375-lb test double-wall corrugated with two double-wall insert liners, the inner laminated to aluminum foil. There are three larger sizes of the same construction.

For larger shipments, Shield engineers designed the Insul Sky Van, made of modular plywood panels with 2" styrofoam liner, in 1,000 or 2,000 pound capacities.



DOWN CHUTES are quick way to move cases to truck loading docks.

Controlled Flow Speeds Orders

THEY HANDLE 6000 products with speed and efficiency at the P. B. Gast & Sons Co. warehouse, Grand Rapids, Mich.

The company is proud of its material handling system which generally enables it to fill orders the same day they're received.

One of the leading distributors of Scott Paper Co. products for the last 30 years, Gast & Sons bank on this prompt customer service for continuing success.

Since 1950, the company has added material handling equipment and devices to move products quickly from its 75,000 square foot warehouse and retail store.

Goods come in on a rail siding where carload orders are received. Within minutes, cars are unloaded. The goods are transported to either second or third floor storage.

Portable conveyors take cases close to their assigned storage spaces. High-low lift trucks do the stacking.

In filling an order, cases speed down chutes to truck docks.



MAY, 1959



Fresh onions packed in ice for shipment in M/R corrugated boxes — just one of many applications for this new H & D development.

STAYS STRONG WHEN WET! It's M/R[®] moisture- resistant corrugated developed by H & D.

No product's too wet for corrugated boxes made of M/R board. Wax-impregnated M/R sheds water like a duck's back, stays strong and firm even when dripping wet. Produce, fruit and other wet product packers save money with this new Hinde & Dauch development. Looking for a better way to box your product? Better see H & D.



Hinde & Dauch

Division, West Virginia Pulp and Paper

AUTHORITY ON PACKAGING • SANDUSKY, OHIO • 15 FACTORIES • 42 SALES OFFICES



HINDE & DAUCH

Division, West Virginia Pulp and Paper
5938 Decatur Street • Sandusky, Ohio

Please rush me samples and detailed literature on new M/R corrugated boxes.

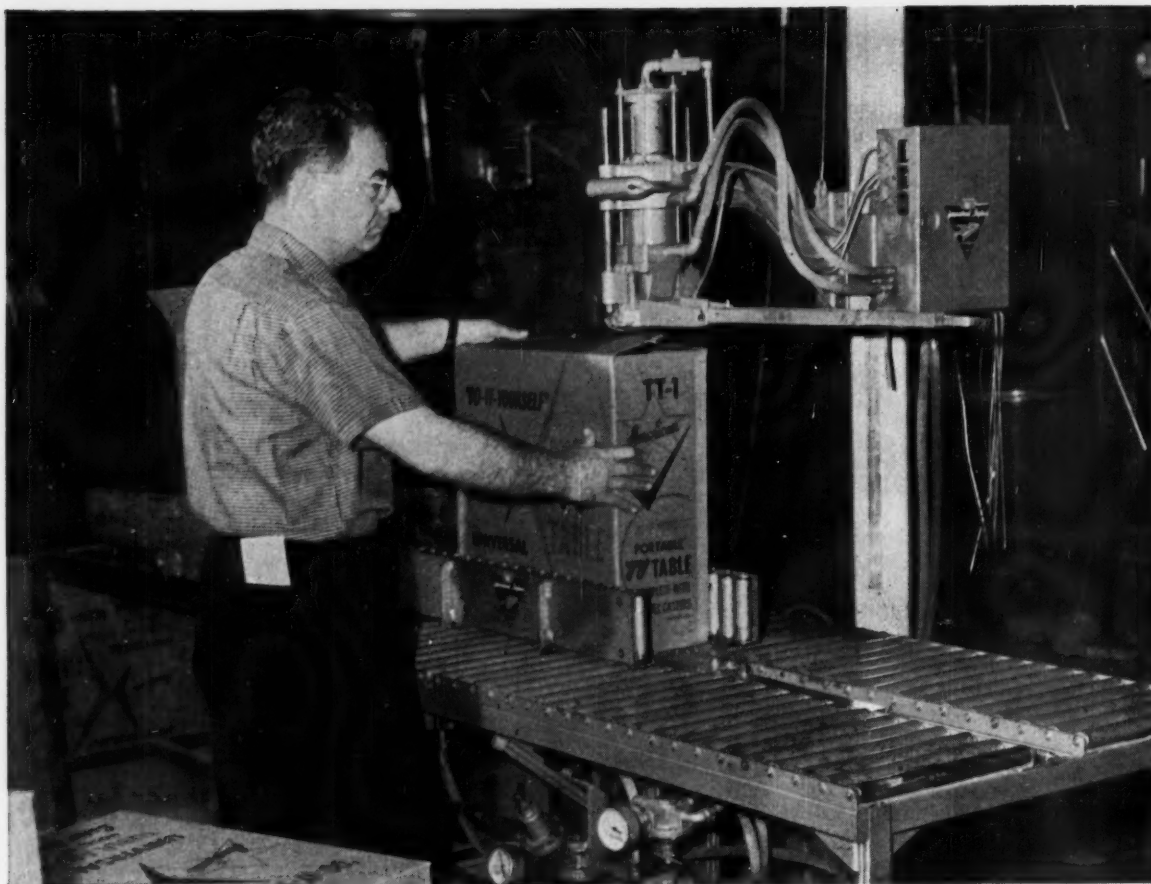
Name _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle 69 on Reader Service Card for more information



International Stapling Equipment

Replaces 4 other carton-closing methods

to Cut Labor Costs in Half . . . Close 400 More Cartons Per Day!

This manufacturer of automotive accessories, TV tables, house carts, etc., had tried all the familiar methods of carton closing — including taping, gluing, hand stapling, taping and wire stitching combination.

Then the International Dual Stapler was installed and cartons were closed by International Gold Crown Staples.

The advantages were immediate. Previous methods required two people to produce 1100 cartons in an 8-hour day. The International Dual is closing 1500

cartons in the same time, with just one operator. (Nor is this anywhere near capacity for this machine, capable of closing 500 cartons per hour).

Efficient use of labor . . . increased production . . . a centralized packaging department . . . and cartons securely closed with large steel staples—all add up to a modern dollar-saving packaging method. Why not call your International Representative now? Ask him to show you how you can streamline your operation to meet today's competition and rising costs. There's an International Stapler for every size operation.

INTERNATIONAL
Gold Crown



International Staplers

INTERNATIONAL STAPLE & MACHINE COMPANY

Originators of Carton Closing Staplers

P. O. BOX 270

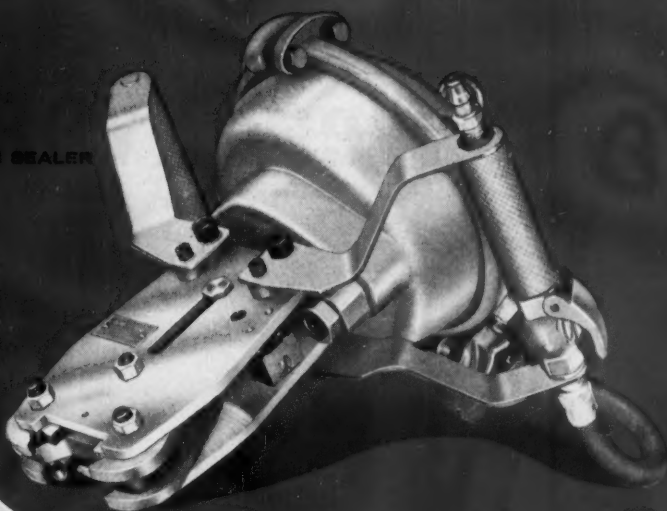
HERRIN, ILLINOIS

Circle 76 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING

Circle 23 on Reader Service Card

PNB SEALER



Brainard's New "Power" Team for Heavy-Duty Strapping!

PNB STRETCHER



Two more new heavy-duty power tools added to Brainard's rapidly growing strapping system—the exclusive PNB stretcher and the PNB2 sealer—give even more cost-cutting advantages to heavy-duty strapping users everywhere.

The PNB pneumatic stretcher permits quick tensioning—automatically—and maintains it. Then the PNB2 pneumatic sealer, with a simple press of the thumb, gives a strong, safe, lasting seal.

Both tools working as a team assure you of fast, efficient heavy-duty strapping on 2" x .050 size on many types of carloading and packaging. Particularly adaptable to carloading of pipe as illustrated. Why continue with obsolete, time-consuming equipment? Get in touch with your Brainard representative for details and prices.

BRAINARD

Safe-Ty

STRAPPING

DIVISION OF SHARON STEEL CORP. - WARREN, OHIO

Circle 35 on Reader Service Card for more information

New HYDRIVER '20'



Self-contained Battery Traction Unit

Can be fitted to any Hand-propelled equipment including:

All types of Hand-Stacker or Straddle Trucks
— Railway Trucks — Semi-Live Stillages
— Hospital Apparatus — Airfield Equipment
— Welding and Generating Sets — Canteen Trolleys — Scrap Bins.

- ★ Labour Saving.
- ★ Cost Cutting.
- ★ Adaptable.

Available in U. S. A. from
Equipment Service Inc.

5107 Columbia Ave., St. Louis 9, Missouri

R. H. CORBETT & CO. LTD.

HYDRUM WORKS · BURGESS HILL · SUSSEX

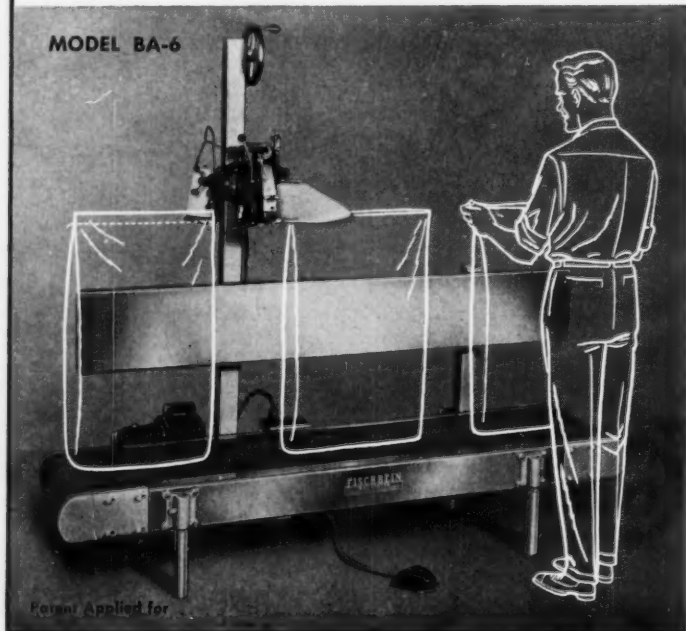
Telephone: Burgess Hill 2737.

A **HYDRUM** PRODUCT

FISCHBEIN® *Automatic* BAG CLOSER

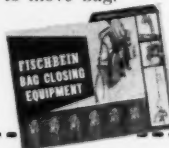
Large Plant Production... Small Plant Price!

MODEL BA-6



- Bag activates and completes sewing operation automatically.
- Simple mechanical operation... Simple installation.
- Sews at rate of 30 feet per minute.

An automatic closing unit. The bags themselves start the sewing operation when they reach the sewing head. After sewing is completed, thread is cut automatically and sewing action stops as conveyor belt continues to move bag.



Write for details and complete catalog-file of Fischbein Bag Closing Equipment.

DAVE FISCHBEIN CO., DEPT. 4-B
2720 30th Ave. South, Minneapolis 6, Minn.

Name _____

Firm Name _____

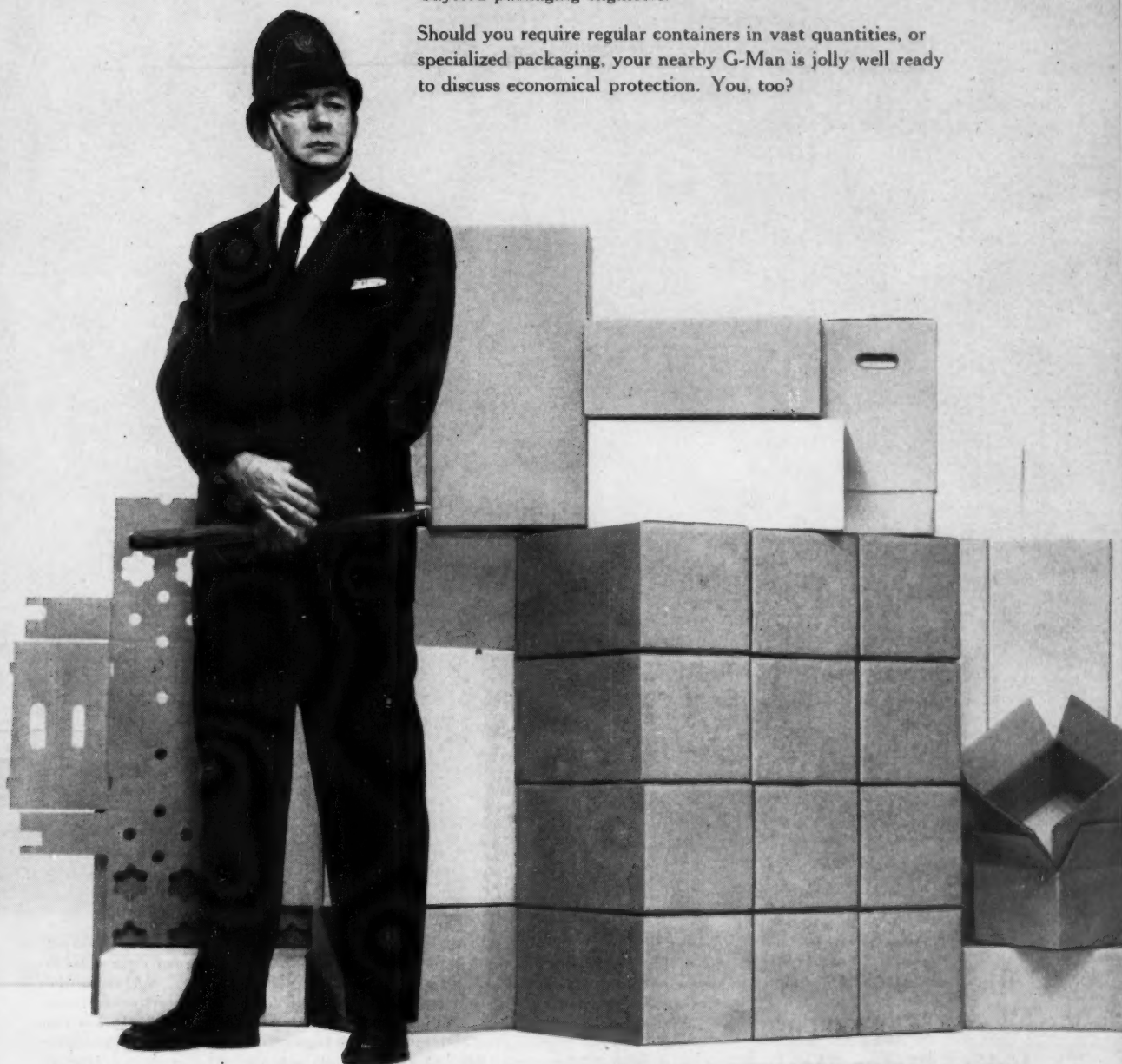
Address _____

Circle 59 on Reader Service Card for more information

GAYLORD PACKAGING GIVES PRODUCTS SAFE-CONDUCT

Nothing like a feeling of security when products get their travel orders, what? Gaylord corrugated boxes give safe-conduct. Strong, stout, sound, snug. Special materials, adhesives. Most ingenious chaps, Gaylord packaging engineers.

Should you require regular containers in vast quantities, or specialized packaging, your nearby G-Man is jolly well ready to discuss economical protection. You, too?



GAYLORD
CONTAINER CORPORATION

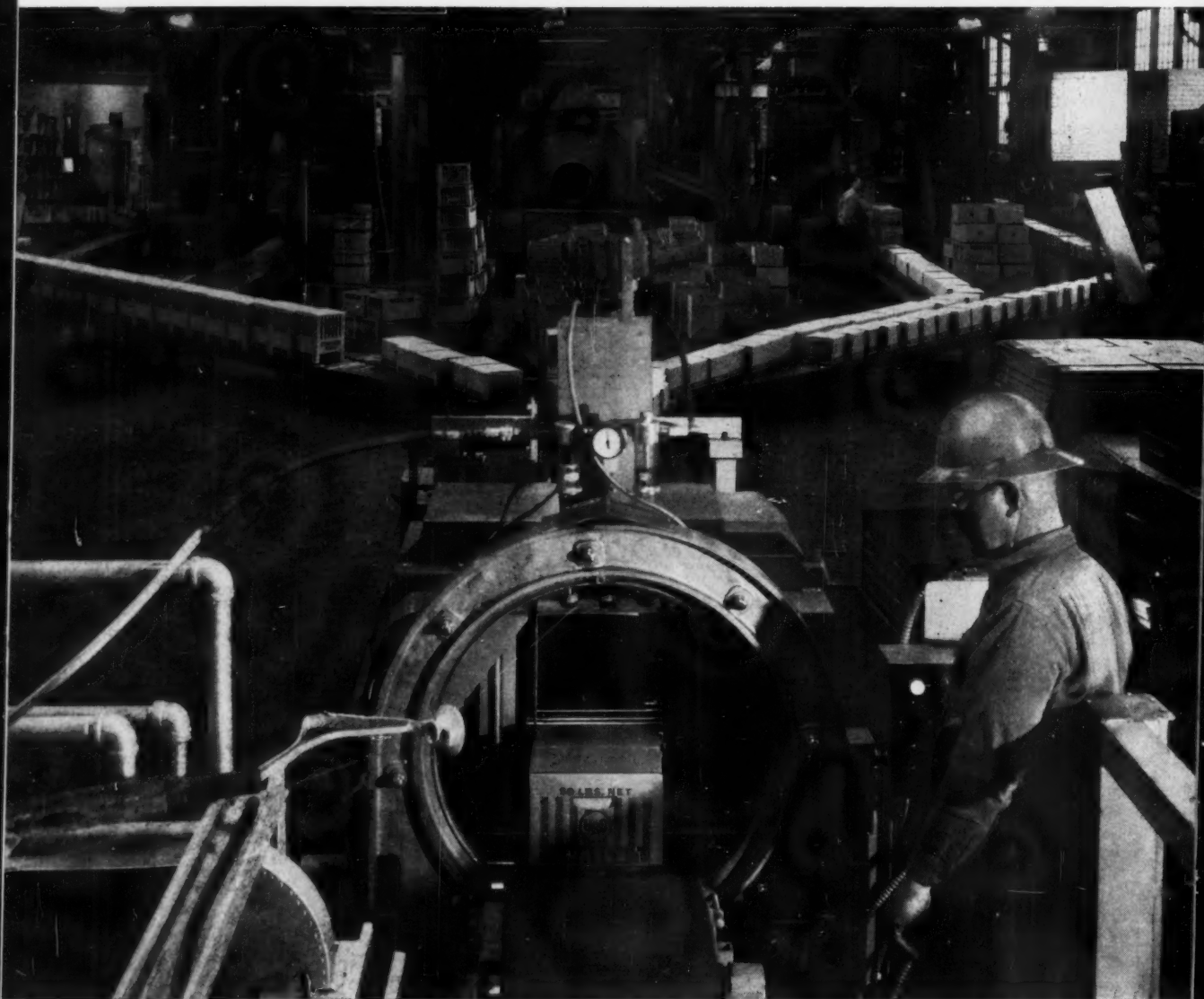


HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**



Another example of **USS** COMPLETE
Model 12 does the work of two machines



**U. S. Steel Supply
Division of
United States Steel**



USS Steel Strapping formerly
Gerrard Steel Strapping

Lightens your work—In the packaging operation shown here, one Model 12 USS Strapping Machine replaced two machines which were formerly needed to handle a wide variety of box sizes. The manufacturer reports, "Adjusting the strapping machine for different-sized cartons is now a matter of two or three seconds versus two or three minutes to adjust the previous machines. Where the old system was capable of binding 2,400 cartons per day, the new machine handles 3,000 cartons daily." Model 12 is fully automatic and ties packages from as small as 2 "x 8" up to 22" x 26", making 24 ties per minute.



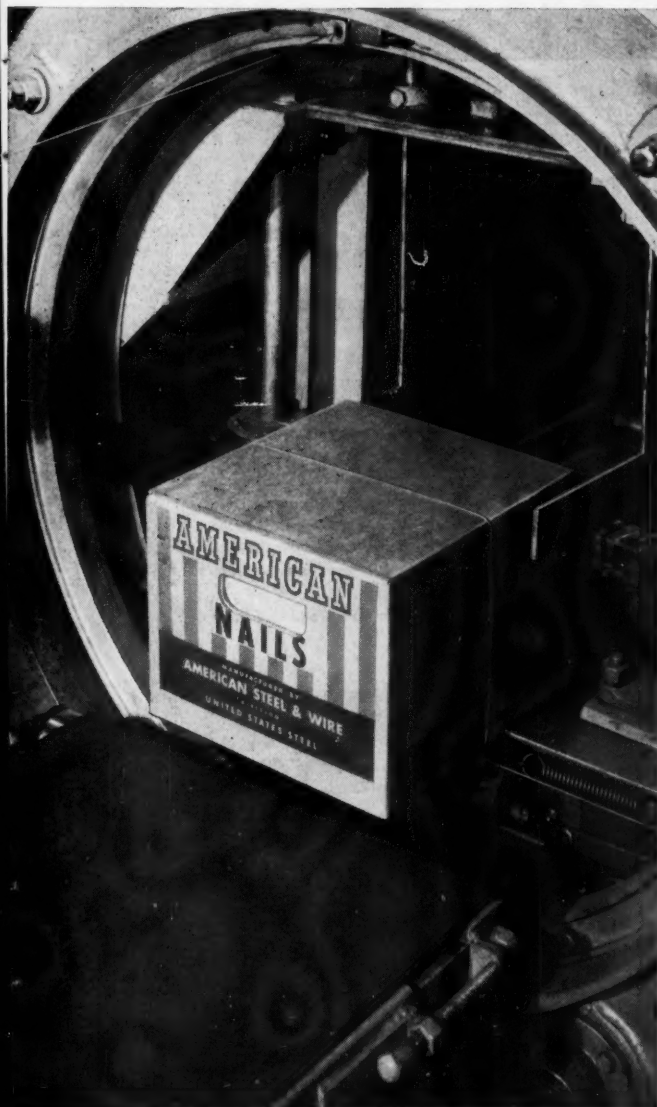
STRAPPING



STRAPPING TOOLS

STEEL STRAPPING SERVICE

—cuts strapping costs in half



Brightens your profits—USS Round Steel Strapping used by the Model 12 offers a considerable saving in strapping costs. In this regard, the manufacturer says, "The biggest savings we have experienced is in material costs—48% savings on 100-pound cartons and 45% on 50-pound cartons. A pound of round steel strapping (96 feet) will bind more boxes than a pound of flat steel strapping which contains 52.4 feet." Other manufacturers have experienced similar reductions in material costs, some as high as 50%, when they switched to USS Round Steel Strapping.

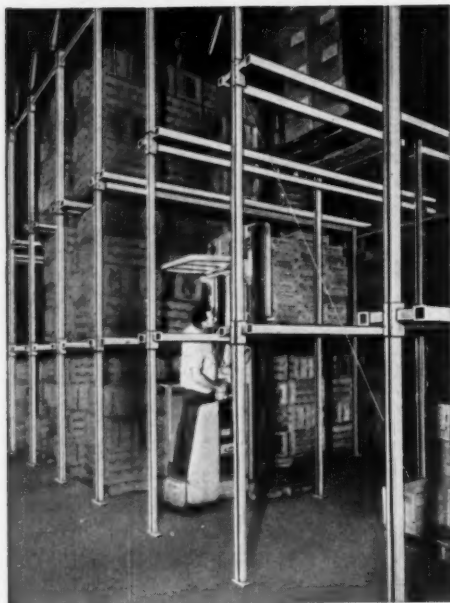
USS is a registered trademark

Widens your potential—In many operations, the installation of the Model 12 machine has the effect of breaking a bottleneck. Faster tying permits increased production—more units shipped per man-hour. Why not consult a USS Steel Strapping Specialist about the application of Model 12 to your production line? Our Strapping Specialists are thoroughly familiar with industrial packaging problems and production line techniques. They have a wealth of experience to apply to your problems, and are not prejudiced in reaching the best solution. They can offer you either round or flat steel strapping as well as hand-operated, semi-automatic and automatic tying machines. Write for a free copy of our Sweet's Catalog insert for further information. U. S. Steel Supply Division, United States Steel, 208 South LaSalle Street, Chicago 4, Illinois.

 **TECHNICAL ASSISTANCE**

Circle 142 on Reader Service Card for more information

American Drive-In or Drive-Thru STORAGE RACKS



Any fork truck can drive directly into storage area to load or unload, the American way.



Sturdy, load-carrying stringers are made of rugged square tubing from one end of a row to the other.

make non-productive

aisle space

productive storage space

Cut storage labor cost — get more storage space for your dollar — by going American. American "Drive-Thru" Racks are open at both ends for trucks to travel all the way through, giving fast, efficient, first-in, first-out load handling. American "Drive-In" Racks can be used against wall for maximum space saving, or can be spaced from wall so trucks can enter from either end. American Racks are designed to meet mass storage problems. American, trigger-quick, slide-n-lock stringers make adjustability an easy matter. Write today . . . let us tell you more about how you can make non-productive aisle space productive storage space.



send for literature

AMERICAN METAL PRODUCTS COMPANY

STORAGE RACK DIVISION

5959 Linsdale Ave. **amp**® Detroit 4, Michigan

Circle 159 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING



USEFUL LITERATURE

Weight Indicator:

For any hydraulic-cylinder type lift truck. Twelve models to choose from, as capacity of truck determines model number of weight indicator. Instrument converts hydraulic lift truck into a weighing device. Six-inch dial gauge is mounted in front of the truck operator. Bulletin M-8 gives full information on how truck overloading can be prevented, how railroad car loading can be totaled, and how better floor weight distribution can be made. The indicator is easy to install.

Martin-Decker Corp.

Circle 201 on Reader Service Card

Sprocket Catalog:

Complete listing of Acme's Grip-Master stock sprockets and flexible couplings for roller chains. Nineteen page catalog 100B gives full dimensions, revised prices, mounting and dismounting instructions, and other engineering data.

Acme Chain Corp.

Circle 202 on Reader Service Card

Space Saving Storage:

STOW selective storage rack system cuts unprofitable aisle space up to 60 percent. It eliminates the 90 degree turn by employing a positive action side transferring attachment that fits all standard counterbalanced fork trucks. System requires an aisle only inches wider than the load size. Specially designed channeled racks support the STOW attachment during entire operation. Load weight being shifted cannot become unbalanced in picking up or discharging. Full information available on how to increase your storage capacity and cut your present handling costs.

Equipment Mfg. Inc.

Circle 203 on Reader Service Card

Roller and Wheel Conveyors:

Catalog 158 gives coverage of the company's line. Light and heavy-duty wheels, and a complete field of conveyor rollers. The latter range in diameter from 1 3/4 to 6 1/2 inches, and in capacity, from 60 to 16,000 pounds.

Mathews Conveyor Co.

Circle 204 on Reader Service Card

Pallet Loading System:

The complete L-P system consists of three components, synchronized to form

a simple pallet loading operation. The stack is powered by a 3/4 hp motor; the mechanical pusher by a 1/2 hp motor; and the automatic taper by a 1/2 hp motor. The top layer of cartons is taped where maximum load stability is required. Literature shows all three operations, and presents typical layouts and dimensions. The company says that the low cost of the machine and installation can make the pallet loader pay for itself in four to nine months.

Lathrop Paulson Co.

Circle 205 on Reader Service Card

Road And Runway Sweepers:

Specifications and dimensions are given on the company's full line. Optional accessories are listed. They are designed for road contractors, industrial plants, stock yards, governmental departments, railroads, strip mines, shopping centers, airports, and parks.

Little Giant Products Inc.

Circle 206 on Reader Service Card

Multiple Addressing:

Accuracy, convenience, and legibility are the features of this company's product. Three basic styles are available in a large number of different sizes as well as in continuous form for separate writing. Type A is a by-product of office procedure; Type B is a squeeze-feed application; and Type C is for imprinting directly to labels, cartons, and tags. Literature pictures each operation, and lists advantages of each.

Sten-C-Lab Inc.

Circle 207 on Reader Service Card

Platform Type Conveyor:

Used for floor-to-floor material handling both inside and outdoors. Platform type conveyor increases useable floor space, easily moves 2000 pounds, handles assorted and palletized loads, and can be installed at any angle. Booklet gives full information, shows many installations, actual job stories, and detailed specifications.

M-B Corp.

Circle 208 on Reader Service Card

Aluminum Hand Truck:

Long life, operation ease, and low maintenance cost are features of the King Quality truck. It has a non-cast nose plate that is guaranteed not to break. Other features listed are: 600 pound capacity; can't rust; has perfect balance; free-wheeling maneuverability. Literature gives specifications for 169 different models.

Langsenkamp

Circle 209 on Reader Service Card

Corrugated Board:

Description, specifications, and performance of M/R board are given in a 4 page report. The report is designed to familiarize shippers of wet products with this moisture resistant board. And to assist them in determining the proper grade shipping box to use for their products. The board is wax impregnated.

*Hinde & Dauch
Div of West Virginia Pulp
& Paper Co.*

Circle 210 on Reader Service Card

Tractor Specification Sheets:

Three specification sheets are available. MS-1325 covers the company's Model Forty Five motor grader. The other two, MS 1192 and MS 1284 give data on the company's HD-16 DC and D Diesel powered crawler tractors. All three sheets feature cutaway views.

*Allis-Chalmers Mfg. Co.
Construction Machinery Div.*

Circle 211 on Reader Service Card

Gravity Racks:

Gravity type racks available for live storage and order picking applications are described in bulletin R-100. They are usually custom designed to fulfill a requirement. Variations, however, are only modifications of a few basic designs. Illustrations demonstrate various applications for specific needs.

Lamson Corp.

Circle 212 on Reader Service Card

Straddle Carrier:

A 4-page brochure describes the M300E model. Some of the features include greater power, better maneuverability, smoother ride, and improved operator comfort.

Hyster Co.

Circle 213 on Reader Service Card

Bulk Weighing:

Automatic bulk weighing systems weigh and record weights, and deliver the number of drafts set on pre-determined counter. System subtracts residual material in the hopper after each discharge. The printed record always shows net weight. Form 2490 gives full information.

*Toledo Scale
Div. of Toledo Scale Corp.*

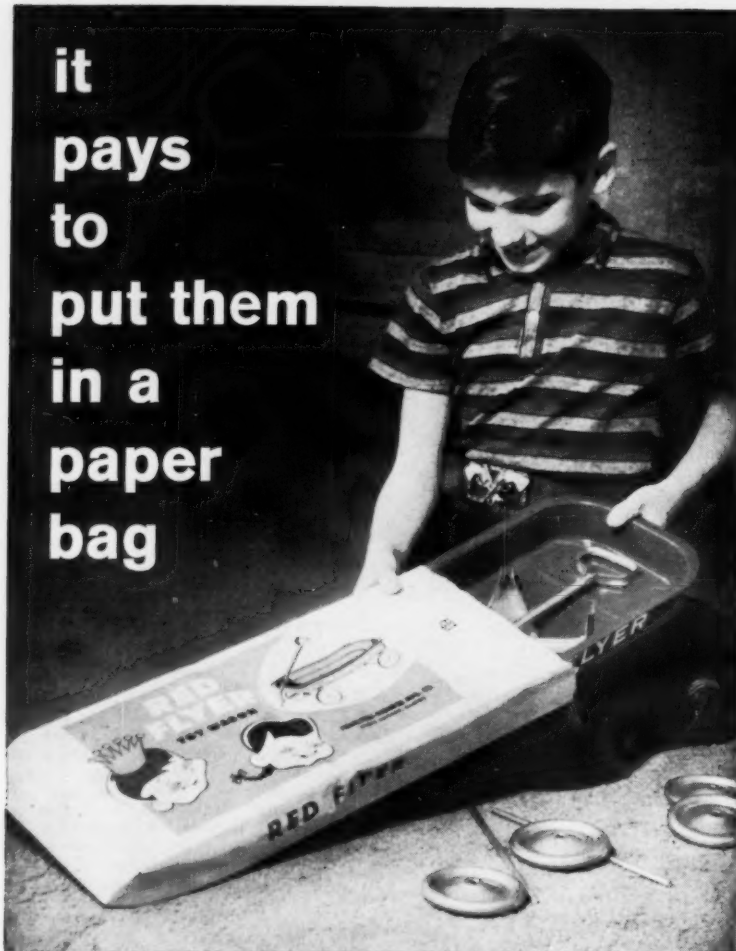
Circle 214 on Reader Service Card

Belt Conveyor Products:

An 88 page catalog ID-591 shows principal products of the company. In-

when you pack "knock-downs" for HOME ASSEMBLY

it
pays
to
put them
in a
paper
bag



Compact, convenient paper bags make excellent security agents for packaged home-assembly products. They speed packing, help lower shipping and handling costs, conserve valuable warehouse and shelf space.

Take the toy wagon bag, above. It packs 22 put-'em-together metal parts. Bag replaces carton, is lighter, less expensive. Colorful printing serves as economical advertising for brand name and contents.

Write for free Booklet CP-1 today. It illustrates dozens of different ways paper bags are helping manufacturers save money, both inside the plant and out.



Commercial Packaging
UNION BAG-CAMP PAPER
CORPORATION

288 BROADWAY, NEW YORK 7, N. Y.
Circle 138 on Reader Service Card for more information

. . . USEFUL LITERATURE

cluded are heavy duty and standard roller bearing and precision ball bearing idlers. An engineering data section gives simplified and condensed information for proper selection of belt conveyors and related equipment.

*Continental Gin Co.,
Industrial Div.*

Circle 215 on Reader Service Card

Blower-Compressor:

A compact axial flow helps assure clean air delivery, shock-free compression, and dependable operation according to the manufacturer. Bulletin CB-157 tells how the unit eliminates over compression, assuring wet compression in vacuum and high pressure service. Full engineering data is given.

*U.S. Hoffman Machinery Corp.,
Air Appliance Div.*

Circle 216 on Reader Service Card

Palletless Handling:

"Space" magazine, second issue of 1958, features an article which points out how palletless handling is now possible for many industrial operations. New developments in industrial truck attachments include wide spread bale arms, revolving paper roll arms, load-grab clamps, end-loader attachments, etc.

Hyster Co.

Circle 217 on Reader Service Card

Radio Communications:

Full information on three transistorized products. The Motrac 2-way radio has completely transistorized receiver and power supply. The "Handie-Talkie" pocket receiver extends the usefulness of 2-way radio system, bringing complete voice messages to anyone within the signal range. The "Handie-Talkie" pocket transmitter is the perfect complement to the latter, to complete 2-way communications for an individual on foot.

*Motorola, Communications &
Electronics, Inc.*

Circle 218 on Reader Service Card

Pneumatic Conveyor System:

How pneumatic conveyors open the way to plant expansion is discussed in bulletin ER-2046-1. The case history tells how a company modernized its material handling routine, reduced handling costs, and provided for plant expansion by installing a system. Old and new handling routes are compared.

Fuller Co.

Circle 219 on Reader Service Card

Bulk Material Handling:

How the tote system will help solve your bulk material handling problems is explained in Catalog #7. The 20-page booklet tells how the system saves labor, container and shipping costs while reducing warehouse space requirements. Various methods of transporting

unit containers are described. Pictures illustrate its adaptability to flatbed cars and bulk hopper cars.

Tote System, Inc.

Circle 220 on Reader Service Card

Crane Points Way To Savings:

"Keep Your Capital Investment Down" is the title of bulletin 91 which contains full details on the Whiting Thrif-T crane. The manufacturer says it provides big-crane performance at lower price. Heading the innovations is a geared-type timing belt easily accessible for routine servicing. Hydraulic braking, a three-reduction hoist, life-lubricated bearings, and provision for control from a cab or from the floor of the shop are other features.

Whiting Corp.

Circle 221 on Reader Service Card

Cellulose Cushioning:

Super crepe, Kimpak for interior packaging, offers high performance, lower costs and gives savings in weight according to the manufacturer. It is used effectively for packing instruments, photographic equipment, glassware, machine parts, equipment controls, painted metal ware, etc.

Kimberly-Clark Corp.

Circle 222 on Reader Service Card

Battery Data:

Bulletin GB-1876 describes the silicic battery plate now available in all this company's motive power batteries. The process for introducing arsenic and silver cobalt sulphates, which form a protective sheath impervious to acid and oxygen, is explained.

Gould-National Batteries, Inc.

Circle 223 on Reader Service Card

Hi-Lift Loader:

Full information on Model 7-B an all purpose loader. It lifts 4000 pounds up to 30 feet. Complete specifications are given. Optional equipment and attachments are pictured. Pictures show actual performance, illustrate transverse movement.

Lull Engineering Co.

Circle 224 on Reader Service Card

Electric Hoist Data:

An average of one foot of ceiling height can be saved in new plant construction. Or a foot of lifting height in existing plants can be added with a Lo-Hed hoist, says the manufacturer. They are available for all through the air material handling systems, for double girder bridge cranes, and for special monorail track. Literature gives capacities and dimensions.

American Engineering Co.

Circle 225 on Reader Service Card

Truck And Caster Data:

Junior catalog 59C gives specifications and illustration on 44 models of two wheel trucks, 12 types of dollies, 4

NEW FAS-LOK STORAGE RACK



- ONLY 2 BASIC PARTS... QUICK ERECTION
- NO WEDGES... NO BOLTS, NUTS, OR TOOLS REQUIRED
- SAFE... RUGGED... COMPLETELY ADJUSTABLE
- Easy access—front or rear.

**LOCKS
IN A SECOND!**

Before you buy any self-standing storage rack, investigate the new FAS-LOK Quick Erecting Rack! FAS-LOK Racks are simple to erect... strong, safer, and can be quickly assembled into unlimited combinations of height, length, and shelf opening to accommodate virtually any type of material. Rigidly braced end frames, available in standard heights from 5' to 22'6", have slots punched in uprights on 3" centers. Horizontal runners have hookplates at each end. Each hookplate has two tapered bars which fit slots of upright (inset) to assemble FAS-LOK Racks, ears are set into the wedge-shaped slots on upright and a tap on horizontal runner drives ears down, seating them securely in a wedging action to produce a rock solid rack.

Horizontal runners are available in lengths to 20 ft.; End Frames in depths from 2' to 5'. End Frames made in capacities to 40,000 lbs.

Write for illustrated catalog and complete specifications

Store any material



Pallets



Barrels



Skids



Bulk



Rolls

See us at Booth #1926
Material Handling Show



CHICAGO TRAMRAIL CORPORATION
1322 S. KOSTNER AVENUE, CHICAGO 23, ILLINOIS

Circle 169 on Reader Service Card for more information

FOR IMPRINTING Flexible Wraps and Films **INDUSTRIAL'S Rainbow Coder**



Attached to either continuous or intermittent types of packaging, wrapping or overwrapping machines — HAYSSEN, BATTLE CREEK, STOKES, TRANSWRAP, OLIVER, GLOBE, BARTELT, WRAP-AID, etc. — the RAINBOW Coder automatically imprints clearly, sharply and permanently at packaging point all combinations of colors, letters and numbers for marking, dating or coding your products.



**Streamline
marking operations**
Cut handling costs
**Increase
volume handled**
**Reduce
inventory costs**
**Speed up
customer service**

Everywhere packagers of fresh and frozen foods, baked goods, candies, hosiery, underwear — anything packed in polyethylene, cellophane, waxed paper, glassine, foil, tissue or any material that takes a hot roll leaf impression—know that the RAINBOW Transleaf Coder sets a demanding standard of comparison hard to beat because the RAINBOW Coder contributes so efficiently to profits.

The economical, rugged RAINBOW saves package pre-printing, inventory and storage costs—needs no operator, no ink, no makeready—and next to no maintenance.

Before you buy any marking equipment, take a good look at the RAINBOW CODER — you'll have a standard for comparison! For complete information, write today.



"Rainbow Coder" is a trademark for Industrial's marking equipment.

ime INDUSTRIAL MARKING EQUIPMENT
855 BERRIMAN ST. company, inc.
BROOKLYN 8, N.Y. NI 9-3305

Circle 74 on Reader Service Card
112

... USEFUL LITERATURE

wagon trucks, and 24 platform and shelf truck models. Many styles of casters, jacks, and semi-live skids are shown. Specifications on demountable rubber tired, plastic, semi-pneumatic and full pneumatic wheels are also given.

Nutting Truck & Caster Co.
Circle 226 on Reader Service Card

Air Line Conveying:

A 16 page bulletin M-588 points out how pneumatic conveying systems can reduce plant operating costs and improve plant efficiency. It covers high density (fluidizing type) and low density conveying systems and equipment. Photos show actual installations, basic equipment, and accessories.

The Day Co. of Canada, Ltd.
Circle 227 on Reader Service Card

Pneumatic Tire Truck:

A 12 page brochure covers performance, construction, and maintenance features of the Hyster Challenger 60, 70 and 80. Capacities range from 6000 to 8000 pounds at 24-inch load center. A list of options, attachments, and accessories is presented, and a cutaway view shows all machine components.

Hyster Co.
Circle 228 on Reader Service Card

Fluid Proportioner:

Bulletin No. 1140.20A-1 describes use and application of the Adjus-O-Feeder. It is designed for chemical and industrial fluid proportioning over a wide range of capacities and pressures. It features compact pump design, minimum maintenance, application flexibility, and economical chemical proportioning.

B-I-F Industries, Inc.
Circle 229 on Reader Service Card

Reinforced Metal Edge Boxes:

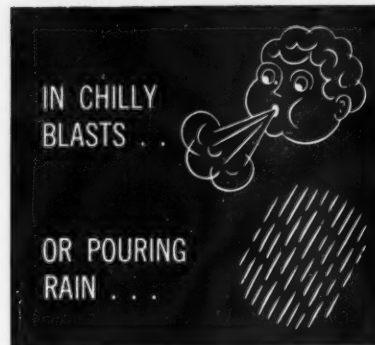
Containers made of kraft paperboard, reinforced with metal edges can cut cost in four key areas. First, in production, by speeding up assembly operations; in inventory, by providing easier, more positive identification; in storage, by making possible complete utilization of existing shelf space; and in handling, by permitting faster flow of material. Tote trays, bin boxes, material handling drawers, inventory control boxes, are among some of the products.

Metal Edge Industries
Circle 230 on Reader Service Card

Belt And Gravity Conveyors:

Handling costs were cut up to 65 per cent by a company through installation of a 160-foot long conveyor. Products are carried from stacking areas in the shipping department directly to loading docks. Elimination of overtime man hours, improvement of order as-

Circle 164 on Reader Service Card

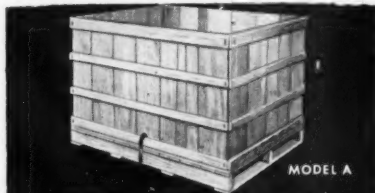


Only DAZZO Dock Shelters provide quick and full protection for dock operations in bad weather. Less than full protection is merely money wasted!

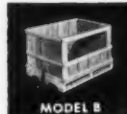
DAZZO Dock Shelters adjust themselves automatically to different dimensions of railroad cars or trucks. They expand in seconds by gravity, without use of springs. They retract out of the way when not in use.

Save money and grief... write for the facts about DAZZO Dock Shelters

DAZZO PRODUCTS, INC.
152 Bleecker Street, New York 12, N. Y.



**FOR LOW COST
MATERIAL HANDLING**



USE...
**BIGELOW-GARVEY
COLLAPSIBLE
TIGHT-CORNER
PALLET BOXES**

THEY'RE REUSABLE

- Economical
- Safe and Neat
- More Convenient
- Quickly Assembled
- Handles up to 3000 lbs.
- Collapsible When Not in Use
- Specially Made For Your Needs

Over 33 Years Material Handling Experience

MILLS ARKANSAS GEORGIA WISCONSIN MINNESOTA KENTUCKY

always check B G Write for complete details and prices to...

BIGELOW-GARVEY
lumber company
General Office and Laboratory
376 W. HURON STREET - CHICAGO 10, ILLINOIS

Circle 21 on Reader Service Card
MATERIAL HANDLING ENGINEERING

sembly, reduced employee fatigue, and better inventory control are among benefits listed in a four page bulletin.

*The Oliver Corp.
A. B. Farquhar Div.*

Circle 231 on Reader Service Card

Overhead Conveyor Systems:

Full information on the Chainveyor development. Feature points explained are adaptability, versatility, low cost, easy installation and long life. Components are pictured, along with typical installations. Layouts are diagrammed.

Chainveyor Corp.

Circle 232 on Reader Service Card

Fiberglass Tote Pans:

A wide range of products, parts and materials can be handled by the reinforced Polyester tote pans. Molded in one piece, a wide range of standard sizes are produced in several styles. Literature gives full information, along with accessories, and 12 illustrations of typical Stack-n-Nest pan installations.

G. B. Lewis Co.

Circle 233 on Reader Service Card

Welded, All Steel Pulleys:

Bulletin 558 gives complete data. The pulleys feature curve crown rim for maximum belt training effect, and minimum belt wear. Squeeze-lock hub gives effective transfer of loads from rim to hub and from hub to shaft. Literature shows how the pulley provides savings in conveyor belts and in downtime.

*Stephens-Adamson Mfg. Co.,
Standard Products Div.*

Circle 234 on Reader Service Card

Storage Rack Library:

Includes a 24-page course of instruction on storage racks, their design and construction. Twelve case histories tell how other companies solved their storage problems. In addition, beam load capacities of such materials as standard I-beams, channel and pipe are given.

Tube-Strut Corp.

Circle 235 on Reader Service Card

Bulk Shippers:

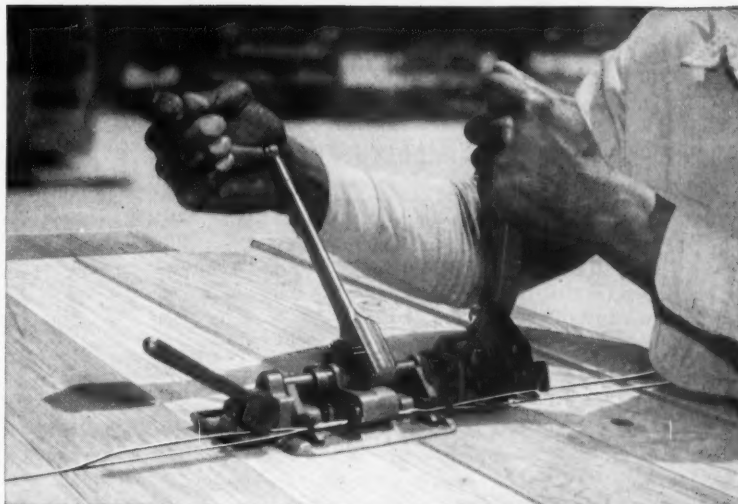
Problems of handling granular and powdered materials are discussed in an illustrated booklet "Expendable Bulk Shippers." Facts are given on wirebound corrugated bulk shippers, as basic construction, assembly, filling, warehousing, and freight. Comparative statistics are given on the 50 cubic foot rail shipper and 22.9 cubic foot truck shipper.

Package Research Laboratory

Circle 236 on Reader Service Card

Waste Pickup Equipment:

Bulletin No. 100 gives information on air operated equipment for handling disposable or reusable materials. There are no electrical connections or motor, no explosion hazard, moving parts, or maintenance. Wet or dry waste or metal chips can be picked up. Fluids up to



Using an A. J. Gerrard Oval steel strapping machine this operator tensions, twists and cuts the strapping in one fast operation.

Stahlman Lumber Company -- Cuts strapping costs 50% ... time by over 12,000 hours!

"Costs less than half the price of other strapping materials. We started using A. J. Gerrard Oval steel strapping about two years ago, and have found that because of the much greater lineal feet per pound yield of Oval strapping, we get 50% more footage for approximately the same price as any other strapping material", reports W. J. McClain of Stahlman Lumber Co., Houston, Texas.

"Easier to use too! Our A. J. Gerrard strapping tool quickly tensions, twists and cuts the strapping in one fast operation. It's not only faster, but we've also found that we're saving two to three feet of strapping per package because of less waste."

"And the manpower we've saved! For example, because we now use modern strapping and handling techniques, an operation that used to take 4½ man-hours is now a 10-minute job. We figure we're saving about 12,480 man-hours per year."

Worth investigating. Clip the coupon below to your letterhead. Find out how you can use Oval steel strapping in your operations ... how you can cut your strapping costs in half.



Oval steel strapping holds this huge load of lumber even in this stress position. This dealer finds A. J. Gerrard's Oval steel strapping cuts strapping costs 50%.

**FREE NEW
CATALOG**



Clip this to
your letterhead

A.J. GERRARD

AND COMPANY

1960 Hawthorne Court

Melrose Park, Illinois

- ☐ SEND DETAIL INFORMATION ON OVAL STEEL STRAPPING.
☐ I'M INTERESTED IN A COMPLETE STRAPPING SURVEY OF MY OPERATION.

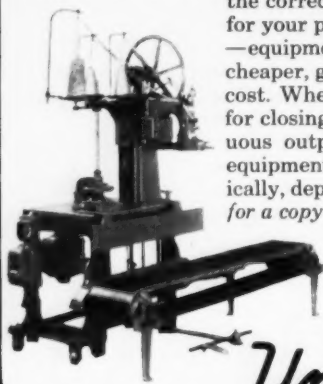
Circle 149 on Reader Service Card for more information

Circle 140 on Reader Service Card for more information

A Guide to LOWER PACKING COSTS BETTER BAG CLOSURES

If you're interested in bringing packing costs down, here is the way to do it. Take advantage of Union Special's wide knowledge of bag closing and its problems. By selecting your equipment from Union Special's complete line you get

the correct equipment for your particular job —equipment that will do it better, faster and cheaper, giving you a stronger closure at lower cost. Whether your production schedule calls for closing just a few bags or for high continuous output, Union Special can supply the equipment to do the work efficiently, economically, dependably! For detailed information, ask for a copy of Bulletin 200. See our nearest representative or write today. UNION SPECIAL MACHINE COMPANY, 415 N. Franklin St., Chicago 10, Ill.



NEW BULLETIN 200

Union Special®
BAG CLOSING MACHINES

. . . USEFUL LITERATURE

two gallons per second can be moved. Any waste that can pass through its 1½ or 2 inch hose can be handled.

Vac-U-Max

Circle 237 on Reader Service Card

Conveyor Belt Carrier Data:

Bulletin 355 features technical data, specifications and illustrations on various models. Among them are the rubber disc type return rollers; automatic belt training return; guide rollers; picking table carrier; belt conveyor trippers; ball bearing carriers; deep trough carriers, etc.

Stephens-Adamson Mfg. Co.

Circle 238 on Reader Service Card

Automatic Lift Truck Drive:

Booklet SP-24 gives detailed information on Towmomatic Drive, a method of power application for fork lift trucks. Pick-up without jarring loads is provided. Driver fatigue is lessened through the system which simplifies lift truck operations.

Towmotor Corp.

Circle 239 on Reader Service Card

Pulpwood Grapples:

A two-page specification bulletin on ½-cord and ¾-cord capacity pulpwood

POWERFUL PULL

to open or close
any freight car door
in 20 seconds or less!



ONE MAN CAR DOOR OPENER

SAVES TIME . . . SAVES LIVES . . . SAVES MONEY!

The Nolan Model H One Man Car Door Opener has been in successful use for many years, by thousands of companies who recognize its exclusive features of speed and safety. This popular tool enables one man to do by himself what formerly required the time and assistance of several men, usually taken off other jobs, to tug and yank while risking mangled hands, strained backs and other serious injuries. With a few quick pulls on the anchor chain as shown here, one man can get the most stubborn door rolling and wide open in a jiffy.

It will keep men working steadily and safely without exposing them to the hazards present when make-shift methods are used to open car doors. Note above how operator is away from the front of the door . . . away from its injurious, killing effects if it should fall!

Order one or more Nolan Model H Car Door Openers Today!

The Nolan Company 110 Pennsylvania St., Bowerston, Ohio

Circle 108 on Reader Service Card for more information

114

ONLY
\$4500
EACH

F.O.B. Bowerston

WORLD'S NO.1 INDUSTRIAL MARKER! King Size FLO-MASTER Felt Tip Pen

Marks BIG & BOLD on any surface!

Especially designed for heavy duty use at your Shipping Room Table—Factory Bench.

King Size Flo-master has a greater ink capacity, uses larger felt tips (up to 1" wide) than any other marking instrument. For use with: • Transparent marking inks, all colors • Paint-like, opaque pigments, all colors • Most industrial solvents

Dual-purpose, snap-on cap may be screwed to table or work bench as a convenient, permanently-secured receptacle. Installed as shown, receptacle is airtight, keeps felt tip always moist, clean and free from factory dust and dirt, always ready for instant-marking on metal, glass, wood, plastics, rubber, fabrics.



By the makers of the pocket-size Flo-master Felt Tip Pen—"The Standard of all Industry."

At your marking equipment supplier—or write to

Dept. MHE-5
CUSHMAN & DENISON
Carlstadt, New Jersey



QUALITY PRODUCTS FOR 75 YEARS

Circle 151 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING



Compact TL-6 unloads a boxcar in about two hours or less.



Large-capacity, short-turning TL-10 often works where smaller loaders are normally used.

There's More Than One Way to Save Money on Material Handling

ONE WAY — fit the loader to the job to be done.

If you have boxcars to unload . . . if your aisles are narrow and your working areas generally small — you need a compact, short-turning loader — like the 15-cu ft TL-6 TRACTOLOADER. * Turns from a 7½-ft aisle into a 6-ft doorway!

If you want a bigger capacity loader and have working areas that are not too tight — but not too ample, either — consider the 1-cu yd TL-10 TRACTOLOADER. Maneuvers like a small loader. You can turn from a 9-ft aisle into a 10-ft doorway!

Both of these loaders have Power Steering and Bucket-Over-Drive-Wheel design for easier steering.

ANOTHER WAY — consider well whether you need a power-shift transmission. Adds about \$1,000 to the cost of a loader and upkeep is higher because more things can go wrong. In the confined areas of most plants, your output will be just as high with the economical, mechanically operated, QUICK-SHIFT transmissions on the TL-6 and TL-10 TRACTOLOADERS. Operator simply pulls and pushes a lever to change direction. There's no clutch pedal! And maintenance is less because there isn't much that can go wrong. There are only two clutches—easy to get at, easy to adjust.

Let your Allis-Chalmers dealer show you how TRACTOLOADERS can save you money when you buy them and while you have them.

*TRACTOLOADER is a registered Tractomotive trademark.

See our catalog in Sweet's Plant Engineering File

ALL TRACTOMOTIVE EQUIPMENT IS SOLD AND SERVICED BY YOUR ALLIS-CHALMERS DEALER

TRACTO—
a sure sign
of modern design

TRACTOLOADERS • TRACTOSHVELS • TRACTORIPPERS

TRACTOMOTIVE

TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

TRACTOHOES • TRACTOSIDEBOOMS



Circle 136 on Reader Service Card for more information

... USEFUL LITERATURE

grapples. The manufacturer says that rapid pickup and discharge, and maximum control of wood during pickup, swing, dump, and long, trouble free life are advantages of its grapple. The 34" blades have a wide 61½" opening with contoured forks to force in big pay-loads.

Schild Bantam Co.

Circle 240 on Reader Service Card

Hydraulic Crane Scale:

The Sensater model is manufactured in seven capacities from 1000 to 20,000 pounds. It weighs material being lifted. Manufacturing, storing, shipping, and receiving costs can be cut down with this scale according to the manufacturer. Features include light weight, minimum headroom loss, and easy reading. Bulletin M-25 gives full details.

The Martin-Decker Corp.

Circle 241 on Reader Service Card

Ease Packaging Line Squeeze:

Your crowded packaging line can be made roomy again with the Midnight vertical case sealer. It conveys filled and sealed corrugated boxes upward instead of horizontally. Each case is held closed by the weight of the cases on top of it while the glue dries. High capacity.

city. Completely automatic. Discharges near your ceiling, in any direction, permitting overhead conveying to shipping, storage, etc. Adjusts to all standard case sizes. Literature available.

Midnight Engineering Co.

Circle 242 on Reader Service Card

Locomotives:

Both gasoline and diesel powered models are covered in a 8 page folder. Specially engineered to provide a high power-to-weight ratio for maximum economy in all types of switching, hauling, and spotting operations. Locomotives shown are available in both standard and narrow gauge models. Sizes range from 3 to 80 tons.

*Plymouth Locomotive Works
Div. of The Fate-Root Heath Co.*

Circle 243 on Reader Service Card

How to Use Zip Tape:

People who work with zip tape will find several useful tips in this 8-page booklet. It gives ideas for both on and off packaging machinery. Also shows how your product can profit from this type of package.

The Dobeckmun Co.

Circle 244 on Reader Service Card

Automation in Labeling:

Just off the press is a 2-page folder describing the Weber Tabber Model 300, for completely automatic labeling.

The Tabber 300 tabs stencils on your continuous invoice forms, up to 2,000 an hour, so you can cut labeling stencils as a by-product of the billing operation. These stencils are then used for labeling cartons, or printing labels in volume. The stencils come in two models: completely blank, or with your company name and logotype pre-cut. In both, the addressee information is cut by your typewriter.

Weber Marking Systems

Circle 245 on Reader Service Card

Asphalt Container:

A 4-page folder describes the Gaylord sewn-bottom one-piece asphalt carton, and the set-up machine used with it. It's leak-proof, and releases cleanly and easily in any weather.

*Gaylord Container Corp.
Div. of Crown-Zellerbach Corp.*

Circle 246 on Reader Service Card

Stop Wasting Cellophane:

Du Pont packaging engineers have developed charts that show sheet cellophane users how to eliminate waste and make neater, better packages. The booklet "Guide to Proper Cellophane Sheet Sizes for Store Level Packaging" contains easy-to-use diagrams that show packagers the sheet size most efficient for the dimensions of the unit to be wrapped. When sheets are too large,

For any Stenciling or Marking on

Corrugated Boxes • Wood • Metal •
Paper • Concrete • Fiber • Fabric •
Painted • Plastered • Glass • Stone

or any other porous or
non-porous surface

Specify REYNOLDS INK

QUICK DRYING — WATERPROOF

9 Colors—Each packaged in the handy
easy-to-use 12 oz. Aerosol Container

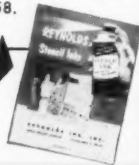
Stenciling, color coding and identification marking have now become clean, quick and easy. Container sprays a dense, compact cone of specially formulated ink at the touch of a finger. Ink is very opaque. Dries in seconds. No smear, smudge or curtaining. Not to be confused with slow drying paints, lacquers and enamels. Easy to store. Always ready to use. No cans to open; no pots or brushes to load. No drying out, no waste, no mess. Saves time. Specify Reynolds,—the original, proven best ink for any marking. A trial will convince you!

REYNOLDS INK, Inc.

4508th EUCLID AVE. • CLEVELAND 3, OHIO



GET FULL DETAILS!
Write Today for Fully
Descriptive Bulletin
No. 58.



CAPCO DOCK COVERS GIVE YEAR 'ROUND PROTECTION

CAPCO Dock Covers completely enclose the space between car and building doorways protecting loading and unloading during bad weather... preventing accidents... insuring against loss of heat or refrigeration. 51 different models in any size for every loading program.



Write for literature
and name of nearest
distributor.

CAPCO

622-24 PROSPECT AVENUE • KANSAS CITY 24, MISSOURI



Circle 119 on Reader Service Card for more information

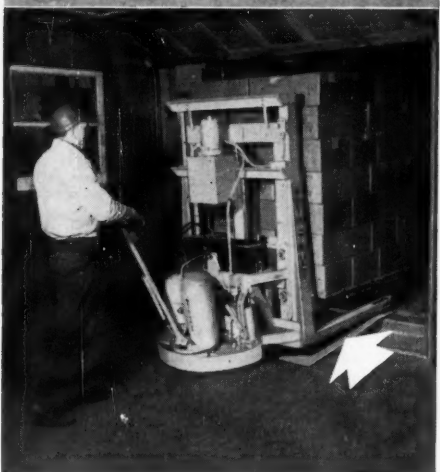
Circle 27 on Reader Service Card
MATERIAL HANDLING ENGINEERING

AVOID HANG-UP on Ramps or Dockboards with **MOTO-TRUC'S**

JACK KNIFE Action



STUCK on the crown of a ramp



JACK-KNIFE Action lifts you clear

Solves Low Underclearance Problems On Pallet And Outrigger Trucks

Because of low underclearance, pallet and outrigger trucks sometimes get stuck on the crown of ramps, dock boards, or sills. If you're faced with that problem in your plant or on your loading dock, Moto-Truc's Jack-Knife Action is the answer . . . it makes your Moto-Truc "Walkies" more useful than ever!

A simple, pushbutton controlled, hydraulic adjustment of the hinged frame gives you that extra clearance needed to take the truck over the crown of a ramp without hanging-up.

You can have this inexpensive feature included on your next Moto-Truc pallet or Hi Lift Stacker at only a slight additional charge. Increase the operational range of your trucks without sacrifice in capacity or load handling ability.



Ask for Jack-Knife Action on your Moto-Truc pallet models, too! Get that extra lift that lets pallet and truck clear the crown of ramps. Let this low cost feature solve your under clearance problems.

Write for Complete Details:

Call your local Moto-Truc representative or write for complete details and prices on Moto-Trucs with Jack-Knife Action!

ANOTHER EXCLUSIVE MOTO-TRUCK FEATURE

Largest Exclusive Manufacturers of
"Walkie" and "Small Rider" Type Trucks.

The MOTO-TRUC Co.



*"Walkie" type Moto-Trucs are also available in these same basic models.

1955 E. 59th STREET • CLEVELAND 3, OHIO

Circle 101 on Reader Service Card for more information

Circle 130 on Reader Service Card for more information



Smooth rolling Sterling barrows, with their scientifically balanced construction, require a minimum of energy. Tests recently completed with three makes of wheelbarrows, each loaded with 320 lbs. of sand, show Sterlings require 40% less vertical force and 60% less horizontal force . . . an amazing performance record. Here are the actual figures:

	Vertical Force Required	Horizontal Force Required
Wheelbarrow "A"	125 lbs.	22 lbs.
Wheelbarrow "B"	128 lbs.	20 lbs.
Sterling Barrow	77 lbs.	8 lbs.

Yes — you SAVE with Sterlings
 . . . save energy . . . save time . . .
 save money. Write for catalog.



STERLING NATIONAL INDUSTRIES, Inc.
 Milwaukee 14, Wis., U.S.A.



A8-4525-1/5



Prompt service to belt users is assured by two factories, one in the Middle West and one on the Pacific Coast.

Cyclone Fence Dept.
American Steel & Wire
Division of
United States Steel



Manufactured at Waukegan, Ill. and Oakland, Calif. • Sales Offices Coast to Coast

CY BELT says

"We make more different types of processing belts than anyone else!"

Cyclone makes all four basic styles of conveyor belting: spiral woven friction drive, spiral woven chain drive, flat wire friction or sprocket drive, and flex-grid. These are available in the widest variety of sizes, meshes, weaves, steels and alloys. We make reinforcing members, flights, side plates and other specialties to meet specific needs. That's why our recommendation can be tailored to your plant and your product. Why not contact a trained Cyclone representative for help in analyzing your processing and material handling problems? Fill in the coupon today.

USS and Cyclone are registered trademarks



Cyclone Metal Conveyor Belts
 Spiral Woven • Flat Wire • Flex-Grid

—MAIL THIS COUPON—

Cyclone Fence, American Steel & Wire
 Dept. MM-59, 614 Superior Avenue, N.W.,
 Cleveland 13, Ohio

Please send me, without obligation, your catalog
 No. 5 on Cyclone Processing Belts.

Name.....

Company.....

Address.....

City..... State.....

Circle 39 on Reader Service Card for more information

... USEFUL LITERATURE

film is wasted and packages are less attractive, the booklet points out. Sheets that are too small waste workers' time and often result in poor seals. There are charts for all size packages.

E. I. du Pont de Nemours & Co.
 Circle 247 on Reader Service Card

Lumber Handling:

Field report No. 40-D2-24 tells how a lumber mill uses an 18,000 pound capacity fork truck to handle in-process and finished lumber. It is used to move 3000 board feet packages of lumber from kilns to a planer and on to storage.

Clark Equipment Co.
 Circle 248 on Reader Service Card

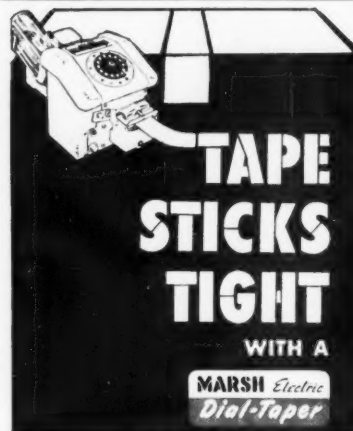
Produce Handling Report:

How processing companies located on both east and west coasts handle jumbo loads of produce in receiving, storage, and vacuum cooling operations is described in Job Study G-100. Fork lift trucks with special attachments are used in the operation.

Towmotor Corp.
 Circle 249 on Reader Service Card

Facts on Interior Packaging:

Kimpack Super Crepe is the subject of a 4-page brochure that's yours for the asking. It describes the advantages of



SEALS CARTONS TIGHT...EVERY TIME

Electrically-heated water softens tape glue for complaint-proof seal. You ship stronger, safer, neater packages.

You save up to 20% in time and tape, too. Just dial desired length—out comes ready-to-use tape for any size carton.

Write for free booklet T-18.

MARSH STENCIL MACHINE CO.
 67 Marsh Building • Belleville, Illinois

Circle 91 on Reader Service Card
MATERIAL HANDLING ENGINEERING

in **BULK** handling

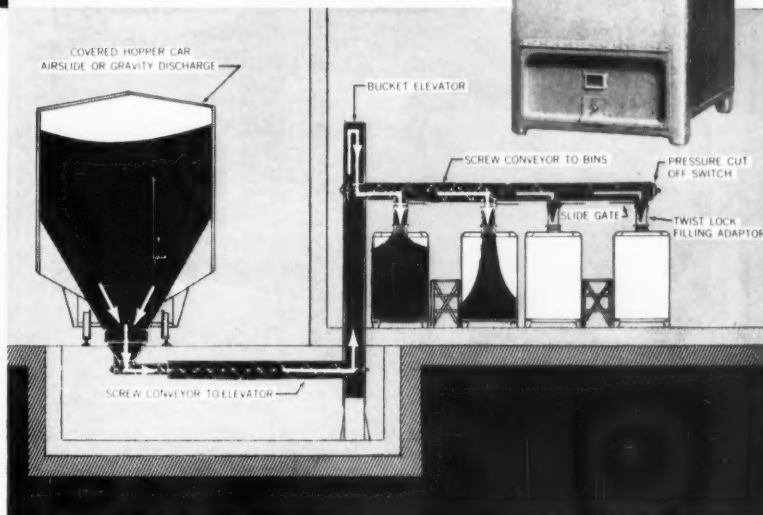
**TOTE
SYSTEM**

offers GREATEST
transportation flexibility

*Tote, a complete, mechanical, automatic bulk handling system, is based on metal bins (aluminum, stainless or carbon steel, monel, or magnesium) plus filling and discharging equipment. Here is how it fits any transportation situation:

See us at Booth No. 1514,
MATERIAL HANDLING
INSTITUTE'S EXPOSITION
in CLEVELAND,
JUNE 9-12, 1959

BULK HOPPER CARS



Tote System can be adapted readily to the use of bulk covered hopper cars, gravity discharge or Airslide®, when these are furnished free by the shipper or by the railroad.

The drawing above shows how quickly and easily mechanical or pneumatic car unloading and Tote filling equipment moves the contents of the car into Tote Bins. The Bins can then be weighed and placed in your warehouse. (Only with Tote

can you weigh your incoming material as a check against your supplier's invoice and also for inventory purposes.)

One man can handle the entire operation — unloading the car, filling, weighing, warehousing the Bins, and moving previously filled Bins from warehouse to discharge stations. In many installations, 100,000 pounds of material are being moved through the complete cycle in less than four hours by one man.

CONTAINER CARS

This special railroad car carries 26 Bins which can be filled by your supplier while still on the car. At your plant or team track, one man with a fork lift can unload the car in 35 minutes. A mileage allowance of 4 cents is paid for every mile this car travels.

TRUCKS

If bulk hopper trucks are employed, they can be unloaded into Tote Bins by the same method used to unload rail hopper cars. Or up to 16 Tote Bins, depending on weight restrictions, can be carried on conventional trucks and trailers.

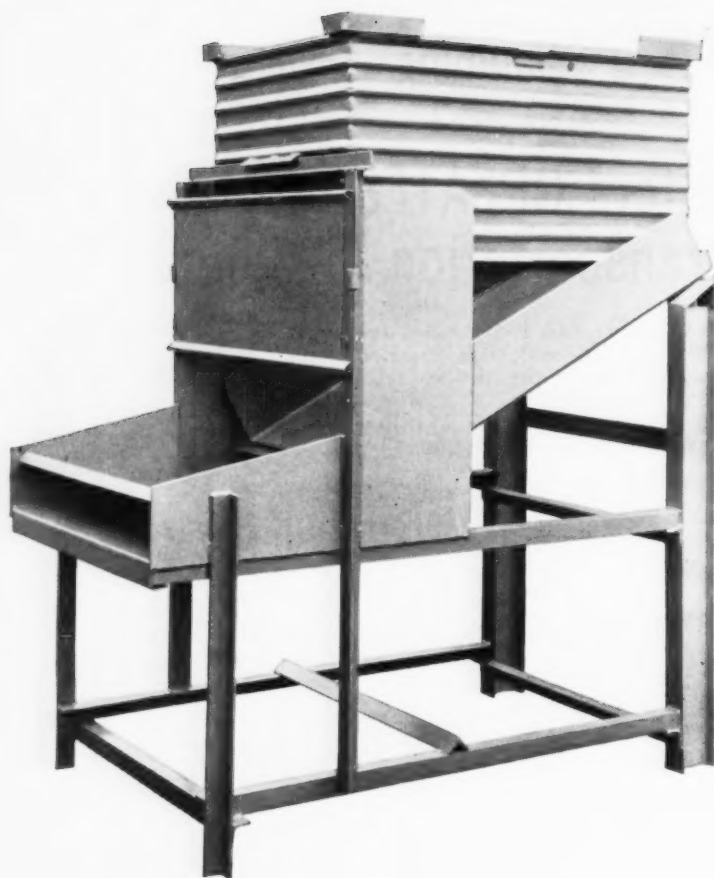
*Why not let our engineers survey your plant at no obligation?
Meanwhile, write for new catalog containing complete details*

TOTE SYSTEM, INC.

630 SO. 7TH ST. BEATRICE, NEBRASKA

Circle 134 on Reader Service Card for more information

Tote and
Tote System
Reg. U. S. Pat. Off.



WORK-O-MATIC DROP-BOTTOM BOX AND POSITIONING STAND

Partners in handling Simplification

For details, request Catalog No. 89.
The Union Metal Manufacturing Company,
Canton 5, Ohio

UNION METAL
Material Handling Equipment

Circle 139 on Reader Service Card for more information

... USEFUL LITERATURE

this cellulose cushioning material, with stress-deflection curves and specification charts. Also shows several applications of the product in use for top protection of delicate products.

Kimberly-Clark Corp.

Circle 250 on Reader Service Card

Vibrating Conveyor Data:

A 16 page catalog No. 66 called "A Guide To Proper Selection of Vibrating Conveyors For Bulk Materials" gives information on material handling operations that can be performed simultaneously while conveying. The publication includes flow charts, capacities, dimensions, and other selection data. Cut-away view of the reciprocating drive shows its design and enclosed construction.

Ajax Flexible Coupling Co. Inc.

Circle 251 on Reader Service Card

Missiles Packed in Fiberglass:

Fiberglass containers for storage, shipment, and ground handling of missiles are described in a 2-color pamphlet now available. Even if you don't package missiles you may get ideas for your plant from this lecture. Some of the containers measure over 18 feet long, and have complex systems for protecting their delicate loads.

Harco Containers

Circle 252 on Reader Service Card

Cushioning for Problem Shapes:

A manual on Sus-Rap tells how this cushioning product can solve your problem of protecting products of any shape, whether wraparound windshields, slabs of marble, or television sets. Sus-Rap comes pre-cut to fit your product. It's light, but offers complete cushioning protection.

Vanant Co., Inc.

Circle 253 on Reader Service Card

"Choose The Power For Your Purpose"

A 12 page brochure describes the industrial and automotive engines now available in the GM Diesel's All-Purpose Power line. Power ratings and overall dimensions are given on over 100 in-line, "V" and turbopower engine models.

*General Motors Corp.,
Detroit Diesel Engine Div.*

Circle 254 on Reader Service Card

Track, Trolleys, Accessories:

Bulletin No. 75 catalogs 100 ampere steel-enclosed trolley busway industrial electrification system. The track, trolleys and accessories are illustrated and described. The bulletin is sectionalized for

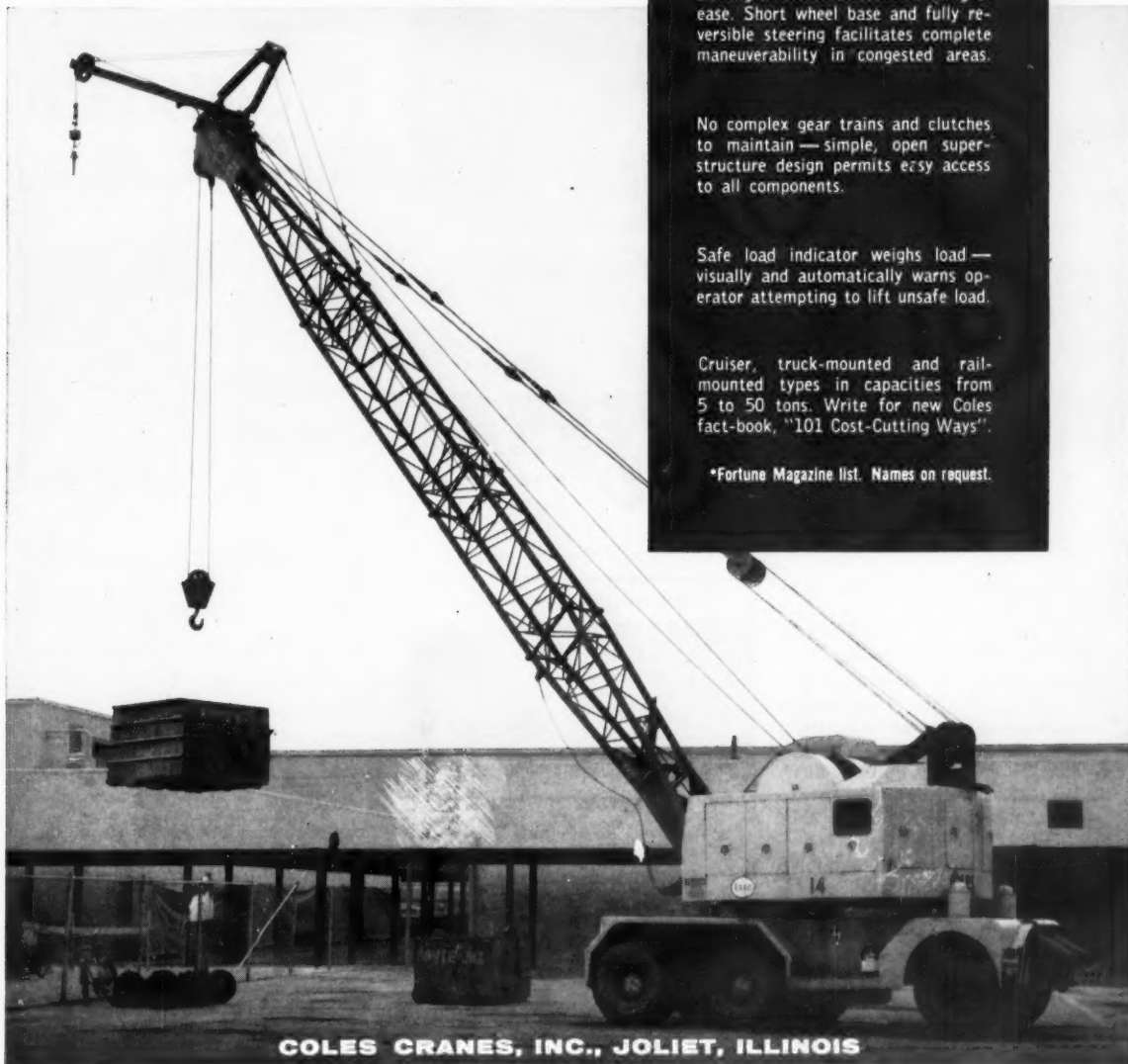
MATERIAL HANDLING ENGINEERING

**Here's why 18
out of America's 50
largest firms* chose**



MOBILE CRANES

17½ ton Coles crane operating at the Baton Rouge Refinery of Esso Standard Oil Company



COLES CRANES, INC., JOLIET, ILLINOIS

Also sold and serviced in Canada by Coles Cranes of Canada, Ltd., 484 Kipling Avenue, South, Toronto
See us at Booth 1501-1606, Material Handling Show, Cleveland, June 9-12

Circle 32 on Reader Service Card for more information

MAY, 1959

Diesel-Electric Powered to give operator positive, accurate, yet simple "finger-tip" control for hoisting, derricking, slewing and travelling.

Each crane motion has its own electric motor and electro-mechanical brakes — no gears to shift — no clutches to slip.

Fully-automatic braking on all crane motions, controlled lowering under power at all times.

Short tail superstructure makes 360° slewing in either direction a thing of ease. Short wheel base and fully reversible steering facilitates complete maneuverability in congested areas.

No complex gear trains and clutches to maintain — simple, open superstructure design permits easy access to all components.

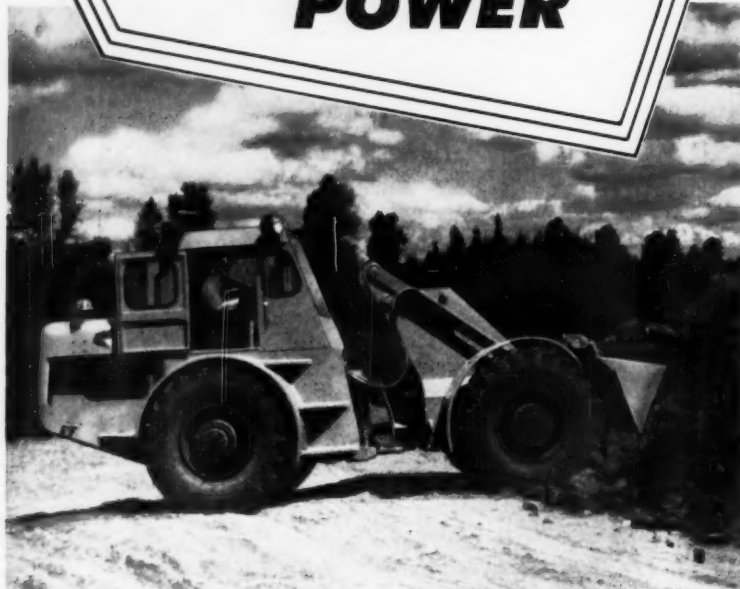
Safe load indicator weighs load — visually and automatically warns operator attempting to lift unsafe load.

Cruiser, truck-mounted and rail-mounted types in capacities from 5 to 50 tons. Write for new Coles fact-book, "101 Cost-Cutting Ways".

*Fortune Magazine list. Names on request.

LOADING SHOT ROCK

takes **EXTRA
POWER**



does it easily
with

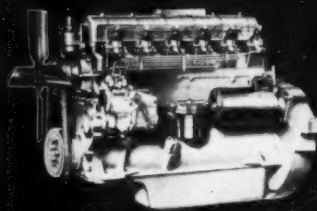
WAUKESHA

Diesel

● Tough stuff to load—that shot rock! Takes a real loader with an engine that can pour on the power. With its Waukesha Diesel, and 100% breakout bucket action, this 1½ cu. yd. LD 5P Scoopmobile handles a lot of yardage for Bowman Sand & Gravel Co., Albany, Oregon—steadily, smoothly, quickly. Four-wheel planetary drive gives power to spare. Power steering, power shift forward and reverse transmission, and 4-wheel power brakes lighten the work of the operator. Waukesha Diesels also give you easy starting, quick warm-up, snappy acceleration, with high fuel economy and most economical upkeep.

372

POWERING the SCOOPMOBILE



Waukesha 190-DLC Diesel—Six cylinders, 3¾ x 4-inch, 265 cubic inch displacement. Send for descriptive bulletin 1411.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK

TULSA

LOS ANGELES

Circle 144 on Reader Service Card for more information

... USEFUL LITERATURE

easy selection of equipment for those who plan and specify electrical distribution systems.

Feedrail Corp.
Circle 255 on Reader Service Card

LP-Gas Film:

Detailed account of LP-. Its origin, ground-to-consumer processing, production, and marketing. Statistical comparison with other commercial motor fuels is shown. Maintenance savings pertinent to fleet owners, lift operators, and farmers, are discussed.

*Century Gas Equipment
Marvel-Schebler Products Div.,
Borg-Warner Corp.*

Circle 283 on Reader Service Card

Storage Racks:

Racks for all types of storage are illustrated in a 4 page data sheet. The manufacturer says that of all devices available to cut manufacturing costs, racks are probably the easiest to apply and are the quickest to pay for themselves. They make use of otherwise idle overhead space.

M-H Standard Corp.
Circle 256 on Reader Service Card

Pneumatic Hoist:

Bulletin No. 850 features the "Detroit" air hoist with rotary type air motor. The motor, motor brake, and controls are outlined. Various mountings for different handling needs are shown.

Detroit Hoist & Machine Co.
Circle 257 on Reader Service Card

Waste Disposal Film:

A 15 minute film called "The New Era of Refuse Collection" is available for technical groups. In color, it traces the history of waste collection, and points to many present day problems. Solutions are filmed on location at well-known plants. The Dempster-Dumpmaster self-loading packer is featured.

Dempster Brothers
Circle 258 on Reader Service Card

Lift Truck Data:

Long life, easy operation, versatility, and safe operation are benefits of this hydraulic lightweight lift truck. It is used with 2 or 4 way pallets available in 2000 and 4000 pound capacity.

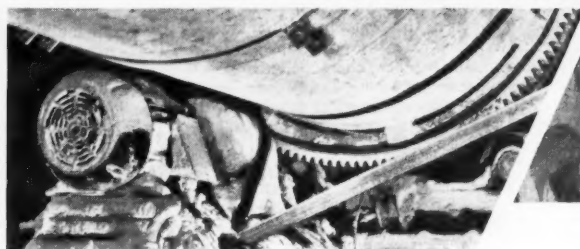
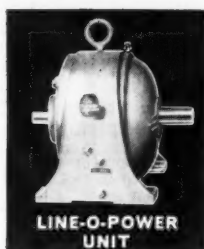
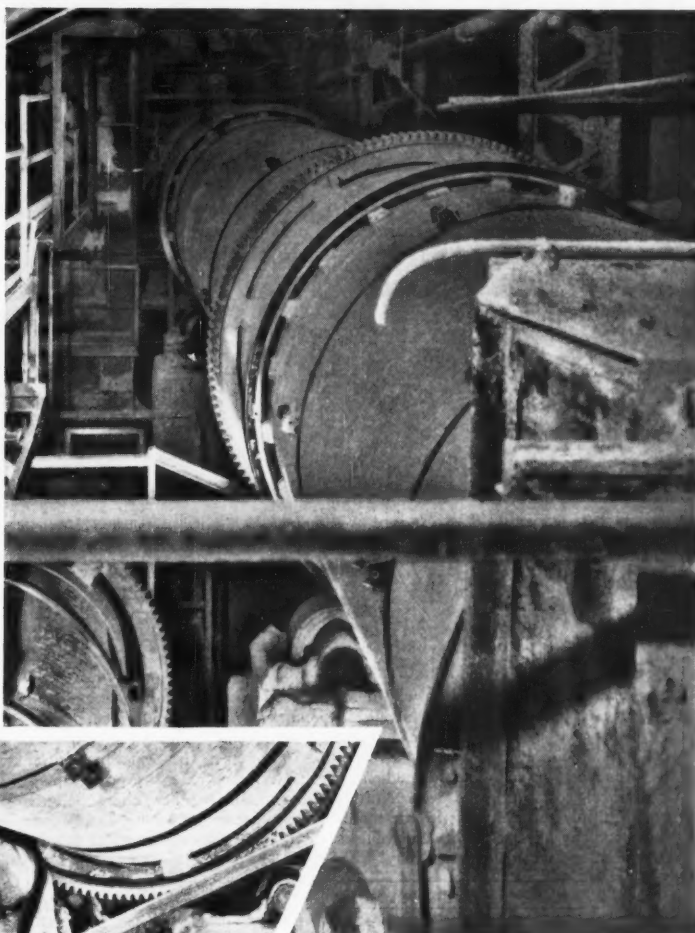
*Wright-Hibbard Industrial Truck Co.
Div. of Jonard Industries, Inc.*
Circle 259 on Reader Service Card

Fork Truck Power Application:

Simple heel and toe movement control the instant action application of power in the drive. The method eliminates clutch assembly, transmission, drive line, differential, plus all shifting mechanism. Features include single pedal directional control, immediate action, fast acceleration, smooth inch-

**Puts 60 Tons
of Plant Food
Through the Wringer
Every Hour —**

**NEVER MISSES
A TURN!**



Driving a giant concurrent dryer, 50 feet long and 7 feet in diameter, with a capacity of 60 tons of plant food per hour takes a reducer with plenty of stamina.

Add the fact that the reducer must withstand heavy shock loads and continuous 24-hour-a-day operation during peak production periods, and you've got a problem.

Yet—the Foote Bros. LINE-O-POWER Reducer used to rotate this unit was installed more

than two years ago and has never been shut down for maintenance.

Dependable, trouble-free performance of Foote Bros. Drives in the chemical process industry is no accident. One of many things you can count on when you specify or install a Foote Bros. Drive is rugged, stand-up-and-take-it stamina. We build them that way.

There's a Foote Bros. unit available to meet your drive requirements. Ask your nearby Authorized Foote Bros. Distributor to recommend the right unit for your requirements. Write for LINE-O-POWER Engineering Manual LP-3.



FOOTE BROS.

Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION • 4577 SOUTH WESTERN BOULEVARD • CHICAGO 9, ILLINOIS
Circle 53 on Reader Service Card for more information

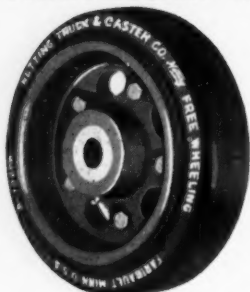
MAY, 1959

123

Nutting

shows you
"HOW"...

to save up to **\$5.00** on each
floor truck wheel replacement!



Nutting "Free Wheeling" Demountable Rubber Tired Wheels

RMD Type—Regular and medium heavy duty. Diameters—4" through 18". Capacity range—250 lbs. through 1250 lbs. per wheel.

RHD Type—Heavy and extra heavy duty. Diameters—6" through 18". Capacity range—550 lbs. through 1800 lbs. per wheel.

The world's only complete line of demountable rubber tired wheels!

There are 2 good reasons why it makes good sense to equip all your floor trucks and trailers with Nutting *Demountable* rubber tired wheels. *First*, you save costly downtime because tires can be replaced in minutes, on-the-job. *Second*, you can save up to \$5.00 on each tire replacement over the cost of complete molded-on wheels. In most cases—even complete wheel costs are less with Nutting Demountables. (See chart below.) Multiply those savings by the number of replacement tires or wheels your company buys each year and you'll see why more than ever Nutting is your best, and most economical buy!

* Nutting Demountable		* Molded-on Rubber Tired Wheel			
Complete Wheel	Tire Only	Brand A	Brand B	Brand C	Brand D
\$5.35	\$3.25	\$8.25	\$6.30	\$7.60	\$4.40

* 6" diameter wheel in normal purchase quantities.

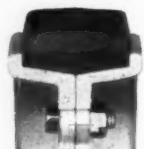
NUTTING DEMOUNTABLES SAVE TIME—MONEY—GIVE BETTER SERVICE!



1. Socket, box or offset open end wrench loosens nuts and bolts.



2. Hub, rim and tire are separated and reassembled with new tire in seconds.



3. No stretch, no creep with exclusive Nutting rim and tough fibre base design.

25% Easier Starting and Rolling—Nutting demountables are made with a special rubber compound called Formula "N". Formula "N" gives you longer wear plus 25% easier rolling than ordinary tires. For complete money saving facts about Nutting demountables, send for your free copy of Bulletin "D".



**TRUCK AND
CASTER COMPANY**
Faribault, Minnesota

Export Sales: Scheel International, Inc., 5909 North Lincoln Ave., Chicago 45, Ill.

Circle 109 on Reader Service Card for more information

See us—Material Handling
Institute's Exposition, June 9-12

NUTTING TRUCK & CASTER COMPANY
100 Division Street • Faribault, Minnesota
Please send copy of Bulletin "D".

NAME _____
COMPANY NAME _____
ADDRESS _____
CITY _____ STATE _____

... USEFUL LITERATURE

ing, driver freedom and comfort, improved gradeability, good braking control, and rapid lifting speed. Literature describes the method.

Towmotor Corp.

Circle 260 on Reader Service Card

Caster Catalog:

Rapistan 3100 caster series. The six page catalog illustrates the six different types with specifications, drawings, and applications. Design and assembly features as top plate, yoke and swivel bearing, are explained.

The Rapids-Standard Co., Inc.

Circle 261 on Reader Service Card

Paper Roll Handling:

Field report No. 35-D2-27 describes how a printing firm reduced paper roll damage and increased roll storage space by utilizing two fork lift trucks equipped with roll handling devices. Roll storage space is increased 20 per cent by stacking rolls vertically rather than horizontally.

Clark Equipment Co.

Circle 262 on Reader Service Card

Hinged Pan Conveyors:

Bulletin No. 58-1 describes the application of hinged pan conveyors in quench tanks, scrap movement, foundries, food processing, and machined part handling.

Anchor Steel & Conveyor Co.

Circle 263 on Reader Service Card

Wheeled Equipment Catalog:

Carts and trucks for housekeeping and maintenance are shown in this 36-page catalog No. 57. Total of 48 styles are illustrated, including two-wheeled hand trucks, platform trucks and dollies, canvas bags, and stands for handling 5-gallon to 50-gallon bottles, drums, or cans.

The Paul O. Young Co.

Circle 264 on Reader Service Card

Spray-On Stencil Inks:

Complete details on aerosol spray stencil fluids are now available in Bulletin #58 just published. It describes nine colors of stencil inks (with color card included), layout ink, blockout fluid for painting out old markings, waterproofing compounds, rust preventives, and colloidal graphite lubricant. Spray-on stencil inks dry in seconds, make stenciling clean, fast, and low-cost. Use them on both porous or nonporous surfaces.

Reynolds Ink, Inc.

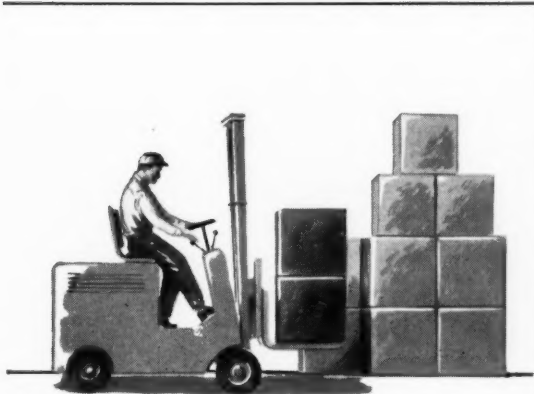
Circle 265 on Reader Service Card

Narrow Aisle Stacker:

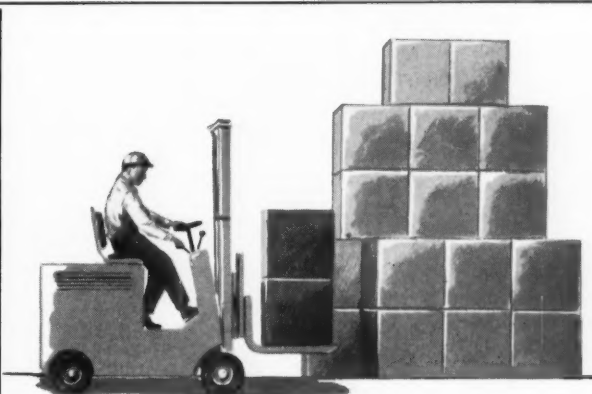
Bulletin 911 describes the company's 2000 pound capacity truck. It operates on four 6-volt batteries connected in series to provide 24 volt power for fast operation. It has 3 speeds in both forward and reverse. Two standard models

YOUR Electric Truck BATTERY

Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.



Equip any electric industrial truck with an Exide-Ironclad Battery . . .



. . . and you boost its work capacity . . . earn a bigger investment return.

EXTRA POWER IN EXIDE-IRONCLAD GETS YOU MORE WORK FROM YOUR PRESENT SIZE FLEET

Put a more powerful battery in any electric industrial truck and you boost its work capacity. Multiply the boost by the size of your fleet and you get an idea of just how much more valuable Exide-Ironclad Batteries can make your trucks.

Each Exide-Ironclad Battery now packs at least 25%, up to 44%, more power than the most powerful truck batteries previously sold. So if you want more truck work capacity, you can get it from your present size fleet. Equipped with new Exide-Ironclad Batteries, each of your present trucks can handle more per shift, move it farther, work longer hours . . . in other words, they can do more, much more, than they ever did before.

Improved battery construction

Exide-Ironclad tubular plate batteries have proved their superiority in thou-

sands of applications. Today they feature new, more advanced tubular construction that dramatically improves performance and extends life potential. This is the latest step forward in the 50-year progress of Exide-Ironclad Batteries. The new armored porous tubing holds the active material even more firmly captive against loss. Greater porosity improves access of electrolyte for sustained high-load capacity. And inside, where vital current flows from the positive plates, Exide's patented Silvium alloy resists corrosion as much as 100% longer than other commonly used alloys.

Now each positive plate in Exide-Ironclad Batteries packs more power

into the same battery space. Battery materials are used more efficiently for greater power per dollar. Here, truly, is today's outstanding battery value for electric industrial trucks.



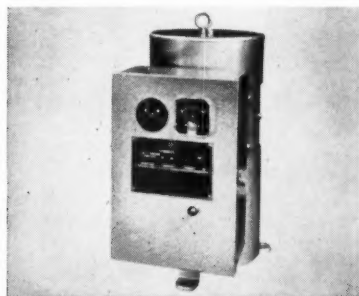
50 years of constant improvement have gone into today's Exide-Ironclad Battery. Latest advance is the improved tubular construction of the positive plate. Skillful application of the most modern, virtually ageless, materials means longer lasting battery power in industrial truck service than has ever before been possible.

For more details on the new Exide-Ironclad Batteries, write for a copy of our 8-page, illustrated brochure #6230

Exide Complete Power Package . . . includes chargers too

For all the value and economy Exide can offer you, make sure you get chargers from Exide too. That way, you get the complete Exide power package. New Exide vertical-design chargers are specifically designed for industrial truck use. Available in a full range of ratings for all trucks, and with operating features unmatched in the field. They save two-thirds in floor space required. Can be wall mounted. Operate cleaner, so

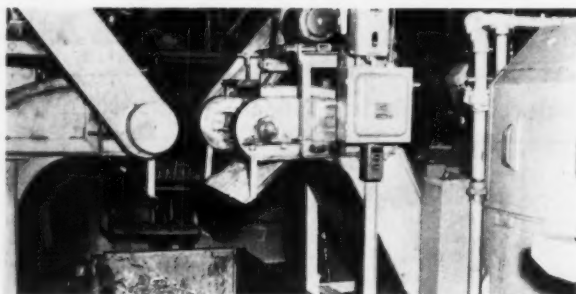
they need less upkeep. In addition, you get the advantage of reliable, thorough and regular Exide service for both batteries and chargers. Write for new brochure giving complete information.



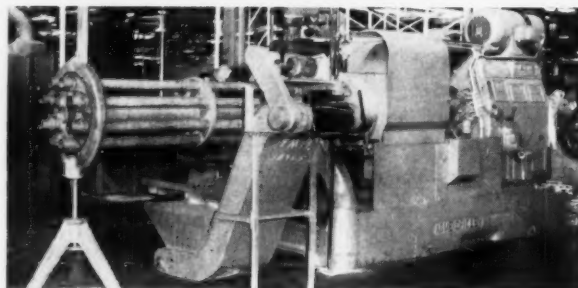
Exide®

Circle 48 on Reader Service Card for more information

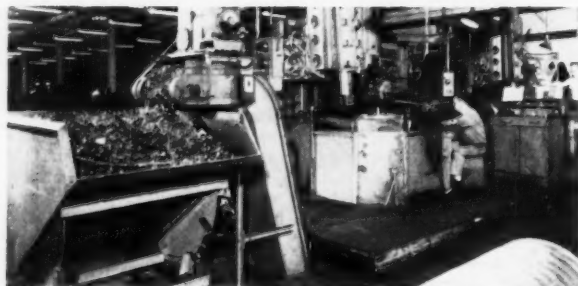
MAY-FRAN CHIP-TOTES



PROVIDE AUTOMATIC AND

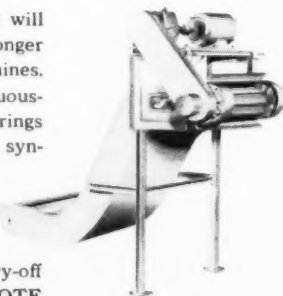


CONTINUOUS SCRAP REMOVAL



**FROM ALMOST EVERY TYPE AND
SIZE OF MACHINE TOOL**

Here is a machine tool accessory that will cut production costs, and permit longer "run" times for your automatic machines. The MAY-FRAN CHIP-TOTE continuously removes the chips, turnings and borings from machines. The conveyor can be synchronized with the metal removing capacity of the machine. Scrap is channeled onto the CHIP-TOTE belt, carried clear of the machine for discharge into tote box or carry-off conveyor system. There is a CHIP-TOTE for every machine tool.



MAY-FRAN
ENGINEERING, INC.

For complete facts,
write today and ask
for MF-640.



7849-MF

1611 Clarkstone Road • Cleveland 12, Ohio

Circle 93 on Reader Service Card for more information

... USEFUL LITERATURE

are offered with collapsed heights of 68 and 83 inches.

The Raymond Corp.

Circle 266 on Reader Service Card

Trucks Handle Long Loads:

Case study No. 127 tells how a Steel Co.'s problem of handling extremely long loads was solved, using minimum aisle space to get maximum use of storage space. Handling time was cut 50 percent.

Hyster Co.

Circle 267 on Reader Service Card

Handling In-Process Parts:

Field report No. 2-DI-36 tells how a manufacturer of electrical gear saved over \$5000 in labor costs and reduced storage area requirements 33 percent by utilizing a fork truck equipped with a rotating clamp to handle containers of in-process parts.

Clark Equipment Co.

Circle 268 on Reader Service Card

Belt Conveyor Idlers:

Book 2716 contains 40 pages which detail engineering selection data on five new series and 23 types of belt conveyor idlers. The company's complete line for belt widths of 14 up to 84 inches is given. The book is key indexed for easy reference in selecting exact idlers to match specific belt conveyor operating requirements.

Link-Belt Co.

Circle 269 on Reader Service Card

Safety Switch For Hoists:

Full information is given on the dyna-switch. This automatically cuts the power supply when a hoist or crane approaches the overload state. Photos, schematics, and text describe the operation.

W. C. Dillon & Co.

Circle 270 on Reader Service Card

Air Hoists:

Bulletin 5145 gives full information on how they spell double safety, providing protection against product damage and explosion. Safety snap hooks, automatic dynamic brake, variable speed control, and anti-friction bearings, are among features. Specifications, dimensions, operating data, and a list of accessories are presented.

Yale & Towne Mfg. Co.

Yale Material Handling Div.

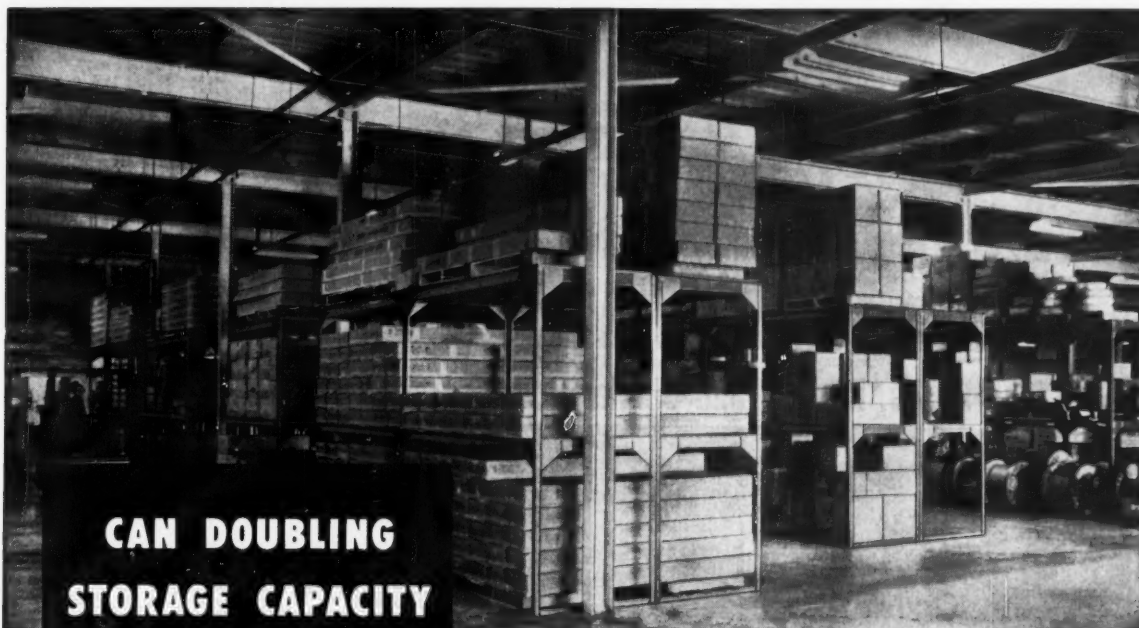
Circle 271 on Reader Service Card

Caster and Wheel Manual:

Catalog No. 60 gives 191 pages on Darnell casters, wheels, glides, desk shoes and accessories. Complete details and specifications are listed.

Darnell Corp. Ltd.

Circle 272 on Reader Service Card



**CAN DOUBLING
STORAGE CAPACITY
REDUCE COSTS
FOR YOU?**



**NEW STORAGE TECHNIQUES GET MORE INTO
LESS SPACE, CUT SERVICING TIME SHARPLY**

Great advances have been made during recent years in the efficient utilization of storage space. For example, one company reports that a 652 sq. ft. area now stores material formerly occupying 1824 sq. ft.— $\frac{2}{3}$ of the space is now used for other purposes. In addition, time required for inventory, an indication of daily servicing requirements, was reduced by 1811 manhours—a saving of over 70%.

Methods of storage handling depend, of course, upon bulk of materials stored, volume, turnover, and similar factors. New storage equipment, developed to accommodate these conditions, effectively reduces storage costs. You can benefit from F-G-M long, diversified experience and know-how in this field.

WRITE TODAY FOR NEW BULLETIN "HOW TO DOUBLE YOUR WAREHOUSE CAPACITY" CONTAINING 16 PAGES OF ILLUSTRATED TIME- AND SPACE-SAVING IDEAS. FREE ON REQUEST.

The FRICK-GALLAGHER Mfg. Co.
105 S. MICHIGAN AVENUE
WELLSTON, OHIO



A-1M

BONDERIZED STEEL EQUIPMENT FOR EVERY STORAGE NEED



"KNOW-HOW"

... increases storage capacity
... reduces servicing time

MAY, 1959

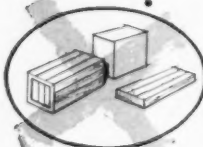
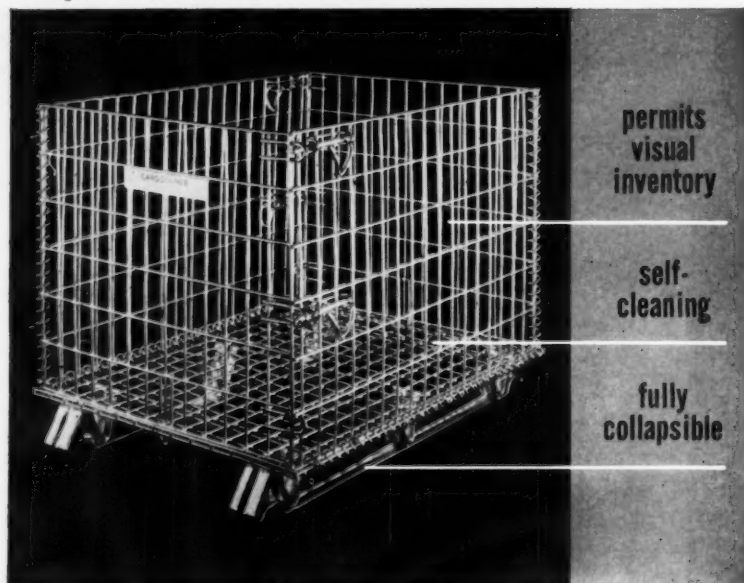
Circle 54 on Reader Service Card for more information

127

IT'S NO TRICK TO GET A

new LO-TARE CARGOTAINER®

Replaces Boxes, Barrels and Similar Containers



The new LO-TARE model weighs a mere 82 pounds, yet handles loads up to 1,000 pounds in weight — a money saver when you ship materials.

For manufacturers now using barrels, wooden or paper boxes, LO-TARE saves money two ways. Its light weight saves shipping costs and its Cargotainer welded wire construction makes it practically indestructible — no need for constant replacements.

In quantities, LO-TARE sells for less than \$28.00 each. Light weight feature allows floor sledding should fork-truck not be available.

Dimensions are 28" wide, 36" long and 24" high. Sides and ends are constructed of 2" x 4" mesh, #2/2 gage welded wire. Deck is constructed of 2" x 2" mesh, #2/2 gage welded wire, over sled-type runners. Fully collapsible for space saving storage.

For complete information and prices, write today!

CARGOTAINER
DIVISION

TRI-STATE ENGINEERING COMPANY
WASHINGTON, PENNSYLVANIA

Circle 157 on Reader Service Card for more information



... USEFUL LITERATURE

All Metal Conveyor:

The belt is of hard zinc coated steel. Armorbelt cannot be damaged by strapping, projecting nails, oil, solvents, impact, heat or cold according to the manufacturer. Smooth surface permits easy loading, unloading, or backing up of packages. Belt links snap together without tools. Other features include automatic take-up, low power requirements, and high load capacity.

M-H Standard Corp.

Circle 273 on Reader Service Card

Hanging Beam Bottoms:

Idea Number U7-4 tells how steel strapping makes hanging beam bottoms a faster, easier, and more economical operation. In the construction of steel reinforced concrete buildings, the use of heavy duty steel strapping can speed the erection of wood forms around steel girders. This results in building cost reduction. Charts diagrams, and photographs are included in the report.

Acme Steel Co.

Circle 274 on Reader Service Card

Fiberglass Containers:

Literature describes various types, used for storage, transport, and ground handling of in-flight refueling stores, missiles, rockets, jet engines, and accessories. The manufacturer says the containers are 60 percent lighter in weight and cut return shipment space half. They are weather and corrosion resistant.

Harco Containers

Div. of Harbor Boat Building Co.

Circle 275 on Reader Service Card

Pneumatic Bulk Storage:

Literature describes the installation, showing savings in real estate and warehouse, time, and manpower by the elimination of sack handling. It is a closed system in which flour is shielded from outside contact from the mill to the mixer.

Sprout, Waldron & Co.

Circle 276 on Reader Service Card

Power Dock Data:

Three models are detailed. Model 8000, retractable; Model 7000, fixed lip; and Model 9000, designed especially for operation with walkie pallet trucks and lighter loads. Technical specifications are given for all.

Hartman Metal Fabricators, Inc.

Circle 277 on Reader Service Card

One-Fourth Inch Scale Models:

The 1959 102-page catalog lists the most used standard machine tools and shop equipment items for use in plant layout and 2-dimensional flow patterns. They are detailed to show floor contact area, all overhangs and maximum operating space. Printed on an adhesive-backed acetate film, they readily reproduce in any type of printing machine.

Repro-Templates, Inc.

Circle 278 on Reader Service Card

IT'S NO TRICK TO GET A "SPECIAL" TRUCK FROM THOMAS



This Thomas Balance Truck has a Q3 superstructure originally designed for safe handling of packages, paper and boxes. The three-sided steel panel design can be "Job-Suited" in various heights and pushbar arrangements.

*They're "Job-Suited" to
Products and Equipment!*

Thomas builds hundreds of trucks to carry loads up to 50 tons and to work with all the latest powered equipment. Any one of these trucks can be "Job-Suited" with standard superstructures designed and built to hold your particular loads. An out-of-the-ordinary superstructure may speed up loading and unloading, carry your loads safely—save time, manpower and materials... actually save many times its cost.

For extremely unusual or difficult handling, the Thomas engineering department can design and build special equipment to meet your specific requirements.

 <p>Endless variations for shelf trucks.</p>	 <p>Combination dolly and live skid for lift truck use.</p>	 <p>All types and capacities of casters and wheels.</p>	 <p>"Power-Suited" all-duty trailers, 1,000 to 10,000 lbs.</p>
 <p>Replaceable flush top skid platforms.</p>	 <p>Platform for use with both Jack and lift trucks.</p>	 <p>Economical multiple-storage stacking boxes</p>	 <p>Safety one-man drum truck</p>
 <p>Adapted for overhead and underfloor towing.</p>	 <p>Puts parts at machine height.</p>	 <p>Elevated three-sided panel truck.</p>	 <p>Rack truck for parts or tote pans.</p>

A Thomas Representative . . .

is ready to help solve your handling problems. Write for your free catalog describing the complete line of Thomas "Job-Suited" Trailers, Trucks, Casters, Wheels and "Jaktung" Systems.



Only **THOMAS** Makes
"Job-Suited" Trucks

THOMAS TRUCK & CASTER CO.
922 Mississippi River
Keokuk, Iowa



Ready-Power **LPG-Electric** Power Unit for Sit-Down Trucks

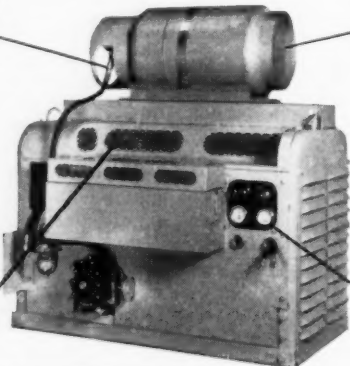
MODEL HA-3 FOR 4000-6000 LB. FORK TRUCKS

Now, get the advantages of full-time LPG-electric power for *any* electric, sit-down fork truck, regardless of make or model. Compact Ready-Power model HA-3 accommodates all seating arrangements . . . assures remarkably low-cost operation . . . minimizes objectionable fume problems. Compact LP-Gas cylinder is mounted on top of engine-generator housing for quick, easy interchangeability. Hinged cover and side plate give easy access to engine accessories; removable end plate permits service of generator. LP-Gas components are listed by Underwriters' Laboratories and comply with Factory Mutual recommendations. Write today for full information.

Flexible LP-Gas fuel lines withstand vibration . . . quick-disconnect coupling assures safe refueling.

LP-Gas cylinder is standard 1 C.C. 33½-lb. or 43½-lb. capacity. A.S.M.E. tank is optional.

Recessed housing accommodates seating arrangement for all electric sit-down fork trucks.



Instrument panel is within easy reach of operator, protected against damage.

See Ready-Power on Display at the
Material Handling Exposition, June 9-12, Booth 1134

READY-POWER

The **READY-POWER Co.**, 3838 GRAND RIVER AVE., DETROIT 8, MICH.

Circle 124 on Reader Service Card for more information

. . . USEFUL LITERATURE

Palletless Handling:

A trailer for palletless freight handling is described in a data sheet. Designed for heavy duty warehousing, freight handling and manufacturing operations, it eliminates the need for pallets and reduces handling time in the outbound operation.

SI Handling Systems, Inc.

Circle 279 on Reader Service Card

Pneumatic Conveying:

Bulletin No. 143-B tells of the company's system for moving dry, free flowing, pulverized, granular or pellet type materials. They are available in stationary or portable systems. Materials are conveyed in enclosed piped systems. Straight-up vertical lifts and right angle bends give flexibility. Materials go directly to point of use or storage. No moving parts endanger personnel, no dust hazards are created.

The Spencer Turbine Co.

Circle 280 on Reader Service Card

Larger Capacity Hoists:

Bulletin 158-G describes the complete line of CM Lodestar electric hoists including three larger capacity and high speed models. The hoists are now available in capacities from ½ to 2 tons with a wider range in lifting speeds.

*Columbus McKinnon Chain Corp.
Chisholm-Moore Hoist Div.*

Circle 281 on Reader Service Card

Modern Docks Speed Shipments

DOCK MODERNIZATION at Schreiber Cheese Co. had to meet rigid requirements. Adjustable dockboards had to be at least 3 feet long to keep grades down. Lifting mechanism had to be maintenance free in cold weather. Dock-



board lips had to be retractable for loading right to the end of the trailer. Dockboards had to be flush for cross-traffic when not in use, and completely automatic.

The company settled on Hi-Lo Adjust-A-Lip dockboards, made by the Kelley Co., Inc. They meet all the requirements, and speed shipments for trucks ranging from low city delivery trucks to 64-inch high refrigerator vans. Added bonus: company mechanics were able to install them themselves.

Circle 282 on Reader Service Card

THE DYNAMICS OF PACKAGING . . .

(Continued from page 97)

by a simple substitution:

$$F = fW \text{ or}$$

$$\frac{Wa}{32.2} = fW \text{ or } a = 32.2 f$$

The mathematics involved is simple. Unfortunately, there is very little information available on static coefficient of friction for common material handling surfaces. The Paper Shipping Sack Test Methods Committee of the Technical Association of the Pulp and Paper Industry began work on this subject at one time, but its results have not been published.

For this reason, we undertook research on this subject at the Department of Industrial Engineering at Purdue University. We tested surfaces common to nearly all types of carrier and packaging surfaces, with the exception of belting materials. (We left belting out because information on it is available from conveyor manufacturers.)

How We Figured It:

The equipment we used for these experiments was a modification of the common inclined plane; anyone could construct it at little cost. See figure 4.

We placed a framework holding a crank, spool, rope, and pulley above a hinged platform. Next we affixed typical carrier surfaces to the platform, and inclined the platform at an angle known as the angle of repose. Then we placed typical load surfaces on the carrier surfaces, and measured the angles at which they began to slide.

The point of slippage for each combination of surfaces, or the angle of repose for that combination, can be used to calculate its static coefficient of friction. The tangent of this angle, θ , which is a — (See figure 5), is equal to the b coefficient of friction f . The proof of this statement: the tangent of the angle θ is equal to the sine of the angle times the weight of the load (the force F acting on the load) divided by the cosine of the



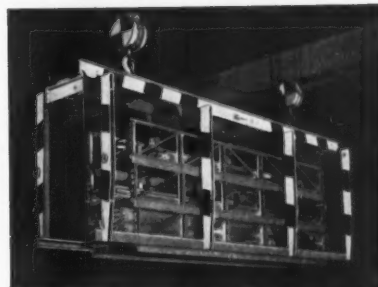
MANSAYER GRABS[®]

Handle Millions of Tons in Your Industry

What are Your Handling NEEDS?

RACK GRABS

Mansaver builds many grabs for handling racks of bars, billets, rods, tubes, and extrusions.



Style 1142 motor-driven handling racks of extrusions.

COIL GRABS

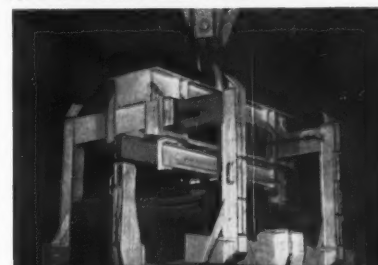
Available in rim-gripping, core-entry, or diametral-gripping models. Variations offered for every conceivable need in manual, semi and fully automatic or power operated styles, coils vertical or horizontal or both.



Style 1418 telescoping leg coil grab with 1588 motorized crane hook.

SHEET GRABS

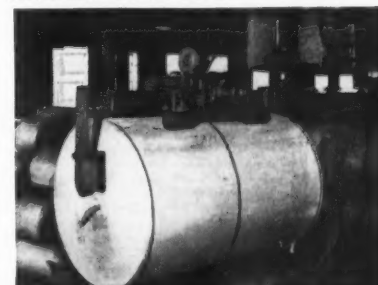
Mansaver offers many sheet grab styles for faster, easier, safer loading and unloading trucks, gondolas or flat cars, for large and small plants.



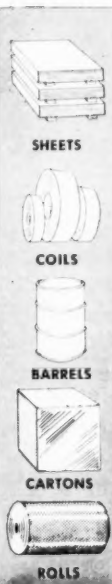
Style 1456 motor-driven sheet grab with motor-driven end hooks.

ROLL GRABS

Mansaver's engineered grabs available for handling rolls vertically, horizontally or both.



Style 1107 motor-driven paper roll grab.



☐ CHECK ITEMS YOU HANDLE
☐ HANDLE SEND LITERATURE FOR
☐ MORE INFORMATION

MANSAYER INDUSTRIES, INC.

3103 East St., New Haven, Conn.
Also Manufactured in England

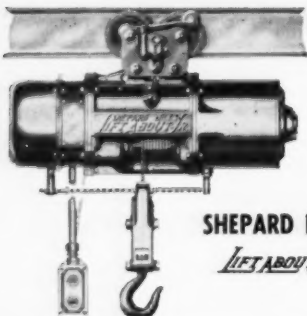
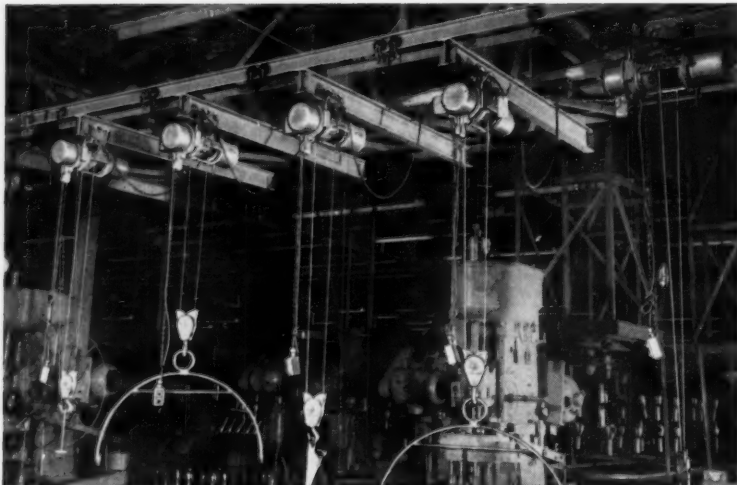
Circle 90 on Reader Service Card for more information

SHEPARD NILES

LIFTABOUT-Jr.

EASES WORK

... on your production line

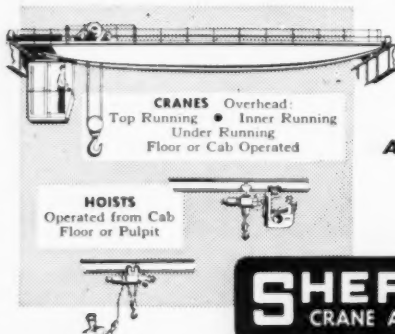


KEEP PRODUCTION on the move

... with a Shepard Niles Liftabout-Jr. This husky, light-service hoist does all your back-breaking lifting ... enables one man or woman to move more material at lower cost.

Low in cost, the Liftabout-Jr. features dependable wire rope hoisting. Available in 250, 500, 1000 or 2000 lb. capacities ... parallel or cross-mounted with bolt, hook or trolley suspension.

SHEPARD NILES
LIFTABOUT-Jr.



- Write for latest Liftabout-Jr. Bulletin ... and ask to have a Shepard Niles representative call.

**America's Most Complete Line
of Cranes and Hoists
Since 1903**

SHEPARD NILES
CRANE AND HOIST CORPORATION

2778 Schuyler Ave., Montour Falls, N. Y.

Circle 125 on Reader Service Card for more information

THE DYNAMICS OF PACKAGING

Continued

angle times the weight of the load (the normal N acting on the load),

$\frac{F}{N}$ or $\frac{F'}{N'}$, which is equal to the coefficient of friction f . Equation for this analysis is as follows:

$$\tan \theta = \frac{\sin \theta \times W}{\cos \theta \times W} = \frac{F'}{N'} = \frac{F}{N} = f$$

when: $\theta = \theta'$

$$N = N' = W \cos \theta'$$

$$F = F' = W \sin \theta'$$

Methods of Testing:

As shown in Figure 4, the carrier surface to be tested (a) was placed on the hinged platform (b) and firmly attached. The adjustable leveling surfaces (c) at the end and on both sides of the platform were set parallel to the surface being tested. A rope (d) attached to the platform led to a spool (e) on the framework (f) suspended above the platform. The platform was raised to any incline by means of crank (g) and pulley (h) on the framework.

Each of the various carrier surfaces tested was affixed to the platform, and a specimen of each of the load surfaces placed on it. Then the platform was tilted until the load slipped, and the angle of repose was measured at that point. Each test was done several times, and we used the average for the tangent of repose, to get an accurate coefficient of friction for that combination of carrier and load surfaces. See tables, page 96.



MATERIAL HANDLING ENGINEERING

YOUNGSTOWN

TOP LOADING

AND

BOTTOM UNLOADING

CONTAINERS

REDUCE BULK MATERIAL

HANDLING COSTS



When handled by crane or lift truck Youngstown bulk material containers can be unloaded, the bottom discharge doors closed and they can be moved to the desired stations by the operators directly from their crane cabs or lift trucks.

This outstanding characteristic of Youngstown containers eliminates the need for additional employees required in the handling of other types of containers. This characteristic also eliminates the resulting slow-down which necessarily follows if operators must leave their lift trucks to unload containers.

Youngstown top loading and bottom unloading containers consequently reduce bulk material handling costs and increase plant productivity.

● Consult with us for improved handling of your bulk materials

THE YOUNGSTOWN STEEL DOOR CO.

Camel Sales Company • Camel Company Limited

CLEVELAND • CHICAGO • NEW YORK • YOUNGSTOWN

Circle 162 on Reader Service Card for more information

MAY, 1959

133

CATALOGS and BULLETINS

offered in advertisements in this publication

Lift Truck Weight Indicator

... lets you weigh a load as you lift it. Helps prevent overloads, totalizes truck car loadings, simplifies weight inventories. A descriptive bulletin is available from Martin-Decker Corp.

Circle 92 on Reader Service Card

Automatic Bag Closer

sews at a rate of 30 feet per minute. After sewing is completed, thread is cut automatically and sewing action stops as conveyor belt continues to move bag. Dave Fischbein Co.

Circle 59 on Reader Service Card

Increase Storage Capacity

up to 60% with the STOW system by Equipment Mfg., Inc. The STOW system employs a positive action side transferring attachment which fits all standard counter-balanced fork trucks. Because it eliminates the 90° turn, it requires an aisle only inches wider than the load size.

Circle 163 on Reader Service Card

Filament Tape

... can be used to reinforce cartons, bundle pipes, bars, and conduit; to hold component parts on appliances such as refrigerators, washers, and dryers during shipment; and for palletizing and unitizing shipments. Up to 500 lbs. tensile strength per inch of width. Minnesota Mining and Mfg. Co.

Circle 98 on Reader Service Card

Stencil Ink in Aerosol Cans

... is quick drying and waterproof. Comes in nine different colors. Can be used on wood, metal, paper, concrete and glass. Reynolds Ink, Inc.

Circle 119 on Reader Service Card

Hydraulic Lifts

... can be used wherever heavy objects must be raised or lowered. Standard

models with 6,000 and 12,000 lb. capacities—specials are available in capacities to several hundred thousand pounds. Easy installation and low maintenance are some of the features. Rotary Lift Co.

Circle 122 on Reader Service Card

More Than 2,000 Service Stations

... for parts and repairs to Wisconsin heavy-duty air-cooled engines are listed in Form S-198 from Wisconsin Motor Corp.

Circle 146 on Reader Service Card

Less Energy is Required

... to operate a Sterling wheelbarrow. Recent tests show that Sterlings require 40% less vertical force and 60% less horizontal force. Sterling National Industries, Inc.

Circle 130 on Reader Service Card

Drop-Bottom Box and Positioning Stand

... for use in handling small parts and assembly line operations is discussed in Catalog No. 89 from The Union Metal Mfg. Co.

Circle 139 on Reader Service Card

Diesel Engines

... give easy starting, quick warm-up, snappy acceleration, and high fuel economy. Waukesha Motor Co.

Circle 144 on Reader Service Card

Dock Covers

... completely enclose the space between car and doorways protecting from weather during loading and unloading. Prevents accidents, insures against loss of heat or refrigeration. 51 different models available. Capco.

Circle 27 on Reader Service Card

Heavy Duty Marking Pen

... can be used with transparent or opaque colored inks.

Snap-on cap may be screwed to table to serve as a receptacle. Marks metal, glass, wood, plastics, rubber and fabrics. Cushman & Denison Mfg. Co.

Circle 151 on Reader Service Card

Electric Truck

... for carrying up to half-ton loads plus operator and passenger. For applications where gasoline powered equipment is not practical. Flat bed can be equipped with stake racks. Cushman Motor Works.

Circle 37 on Reader Service Card

"How To Double Your Warehouse Capacity"

... is a 16 page time- and space-saving idea booklet offered by The Frick-Gallagher Mfg. Co.

Circle 54 on Reader Service Card

Tires With Extra Gripping Trends

... The Lug tread on Goodyear tires makes it ideal for use wherever sure-footed traction is required. Information on the Lug Industrial and their complete line of pneumatic and solid industrial tires is available from the Goodyear Tire & Rubber Co.

Circle 64 on Reader Service Card

Engine Hour Meters

... give information for systematic and periodic servicing of equipment, tells operating time in hours and minutes at a glance. For use on any equipment powered by internal combustion engines or battery-powered equipment, and equipment powered by line current. John W. Hobbs Corp.

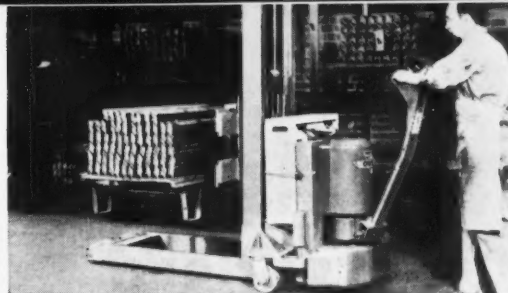
Circle 70 on Reader Service Card

Belt Conveyor Components

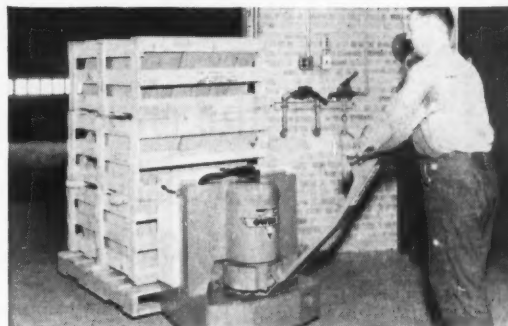
... which are easily assembled into custom units are available from the Alvey-Ferguson Co. The components include straight intermediate sections, top curves, feeder sections, drives, take-ups,



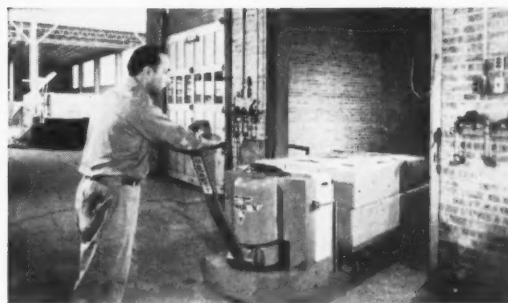
Barrett's new TTG Hi-Lift Fork Truck handles so easily, with new hydraulic power, simplified controls. Worth investigating!



New Barrett HPG-40 Platform Hi-Lift Truck with new power controls, new ease of operation. Ask about it.



New Model PXG Walkie Pallet Truck features an important first: power up and power down! Check coupon.



New Model PG Walkie Platform Truck — 6-in. lift and exclusive single-frame design for greater underclearance.

New BARRETT electric walkies...engineered to your job

Selecting electric walkie trucks raises the usual question: Do they move your products most efficiently at lowest cost?

Once you and Barrett engineers conclude that walkie trucks best fit your system, you turn to Barrett's job-engineered electric walkie line.

Here you find new advantages. New, improved, ahead-of-the-rest features include a straight-line gear drive for greater efficiency, easier maintenance. You find simplified controls, easy maneuverability, long-life performance—and exclusive features such as power up and power down in the new PXG Pallet Truck.

Then you readily conclude Barrett is your best buy!

B

BARRETT-CRAVENS COMPANY
 614 Dundee Road • Northbrook, Illinois
 Representatives in All Principal Cities
 Canadian Licensee:
 S. A. Armstrong, Ltd., Toronto, Canada

BARRETT

See us in Booth A-1004, Material Handling Institute's Exposition, Cleveland

Barrett Handling Equipment



Return coupon for complete facts

The coupon below lists all the equipment shown on this page. Check it to get complete information. Note: the new Barrett motion picture, "New Horizons in Material Handling," is worth seeing!



Barrett-Cravens Company
 614 Dundee Road, Northbrook, Illinois

Please send me bulletins on equipment checked: HPG-40 Platform Hi-Lift Truck....., PXG Pallet Truck....., PG Platform Truck....., TTG Hi-Lift Fork Truck.....

Please arrange motion picture showing.....

Name.....Title.....

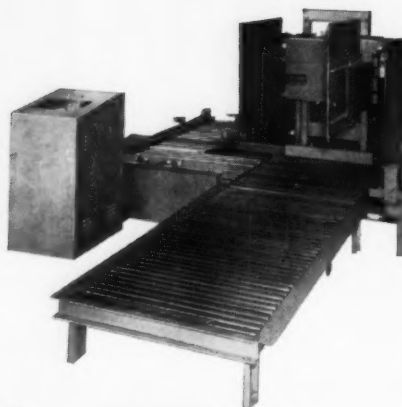
Company.....

Address.....

City.....Zone.....State.....

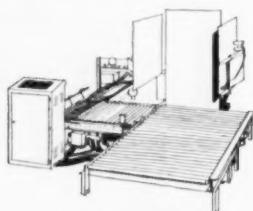
Circle 18 on Reader Service Card for more information

Ask Standard how to:



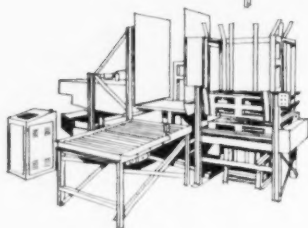
- ✓ Palletize or unitize *automatically*
- ✓ Unstack palletized or unit-loads *automatically*

Standard Conveyor Company offers a wide range of precision engineered machines for fast, automatic assembly, as well as unstacking of palletized or unitized loads — applicable to a wide variety of cased merchandise — operate at convenient low working level — faster than manual methods — save man-hours.



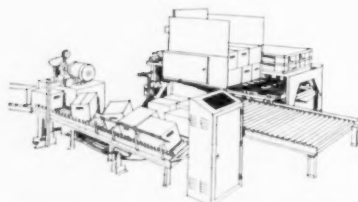
CLAMP-TYPE UNITIZER

Assembles unit-loads in desired size and shape automatically in a steady, uninterrupted flow directly from conveyor. Forms unit-loads by clamping and lifting successive layers of cases. 1800 lbs. maximum unit-load capacity; can be used with or without pallets.



LO-LOAD TYPE UNITIZER

Automatically receives individual cases from conveyor lines and arranges them into unitized load. Operates at low working level. Builds loads in successive layers of cases through finger supports which retract as layers are completed. 2500 lbs. maximum unit-load capacity; handles items packaged or bottled in glass containers.



UNITIZER UNSTACKER

Unstacks pallet unit-loads automatically, up to 45 cases per minute. Lifts load from pallet (which is automatically moved into pallet stacker). Successive layers of cartons are released and single cases fed onto outgoing conveyor line.

INVESTIGATE — send for literature and complete information on machines suitable for your merchandise. Write Dept. A-5, Standard Conveyor Company, North St. Paul 9, Minnesota.

Standard
GRAVITY & POWER
CONVEYORS

Sales & Service in Principal Cities

Circle 129 on Reader Service Card for more information

See Our Exhibit
1959 Material Handling
Exposition
June 9-12 Cleveland
Booths 1941-1943

CATALOGS & BULLETINS

Continued

belts, idlers, floor supports and ceiling hangers. Can be erected by unskilled help with ordinary hand tools.

Circle 5 on Reader Service Card

Engineered Conveyor Systems . . . pallet loaders and unloaders, vertical lift conveyors, roller, belt, apron, pusher bar, spiral, and slat conveyor are all available from Alvey Conveyor Mfg. Co.

Circle 4 on Reader Service Card

Heavy-Duty Strapping Tools

. . . The PNB pneumatic stretcher permits quick tensioning and automatically maintains it. The PNB2 pneumatic sealer, with a press of the thumb gives a strong, safe, lasting seal. Details are available from Brainard Steel Strapping Div. of Sharon Steel Corp.

Circle 23 on Reader Service Card

"Keep Your Capital Investment Down" . . . is a booklet giving detailed information on the new Thrift-T Crane. Pre-engineering, mass-produced parts and new design developments result in big-crane performance at small-crane cost. Whiting Corp.

Circle 172 on Reader Service Card

The Ultimate in Filtering Action . . . is guaranteed with the Century triple action chamois-felt-screen system for their LP-Carburetion Systems. The fuel locks require only one simple installation procedure. Full range from only two basic models for all type engines. Century Gas Equipment, Marvel-Schebler Products Div., Borg-Warner Corp.

Circle 28 on Reader Service Card

Truck Levelers . . . can cut loading time by 75%. Ramp style lift installed at the foot of the dock raises the rear wheels to bring the truck bed flush with the dock when the truck backs into the bay. Platform lifts are available where there is no dock. Technical details and catalogs are available from The Wayne Pump Co.

Circle 145 on Reader Service Card

MATERIAL HANDLING ENGINEERING

PUMPS most anything* THAT POURS!



*A few exceptions.
Write for approved list.

Take the risk and waste out of liquid transfer! This rugged Tokheim Hand Pump, with alternate diaphragms, handles most anything from diesel oil to acetates—safely, quickly, without spillage. Eliminates fire hazards and accidents, aids good housekeeping. Accelerates production, too. Pumps 20 gallons per 100 strokes. Get list above from your Tokheim dealer, or write direct today.



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TOKHEIM CORPORATION
DESIGNERS AND BUILDERS OF SUPERIOR EQUIPMENT
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1468 Wabash Avenue

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Factory Branch: 475 Ninth Street, San Francisco 3, California
In Canada: Tokheim-Reeder of Canada, Ltd., 205 Yonge St., Toronto, Ont.



Weigh it as you lift it
with the **MARTIN-DECKER**
LIFT TRUCK Weight Indicator



KNOW THE WEIGHT OF EVERY LOAD

As you lift it!

Here's the accurate, convenient, safe low-cost way to prevent overloads—totalize truck car loadings—simplify weight inventories—insure floor weight distribution—
Send for illustrated Bulletin N-25
describing lifting and weighing in one operation.

MARTIN-DECKER CORP.
HOME OF THE WEIGHT INDICATOR — LONG BEACH, CALIFORNIA

SUPPLEMENTARY READER SERVICE CARD

Many readers have reported that their copy of **Material Handling Engineering** sometimes arrives without the Reader Service Card. This may be caused by others in the plant who see the magazine first, tear out and use the card and pass the magazine on. If this copy reaches you without a Reader Service Card, use this supplementary coupon to obtain additional information from the manufacturer on any advertisements, new equipment, useful literature, etc. CAUTION: This must be mailed first class in a sealed envelope.

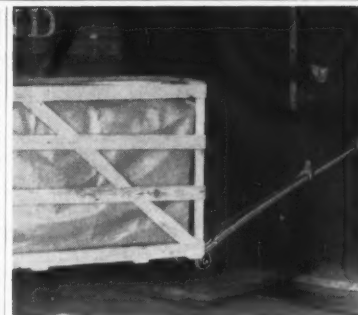
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May 1959. Do not use after 8-15-59

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22	47	72	97	122	147	172	197	222	247	272	297	322	347	372	397	422	447	472	497
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MAY, 1959



MICRO LEVER DOLLY

a low cost safe tool
to move heavy objects

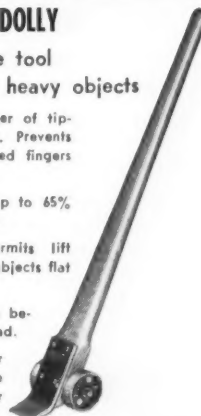
Eliminates the danger of tip-ups and high falls. Prevents back sprains, crushed fingers and pulled muscles.

Cuts moving time up to 65% on large bulky items.

Correct design permits lift blade to pry under objects flat to the floor.

High leverage ratio between power and load.

Four sizes. Metal or rubber wheels. See local distributor or write to—



MICRON, INC., Bettendorf, Iowa

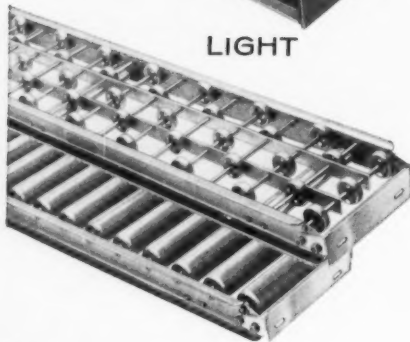
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Only BUSCHMAN has it!

IN-STOCK delivery on a COMPLETE range of roller & wheel conveyors



LIGHT



MEDIUM



HEAVY

For fast delivery Buschman has available and in stock all three types of gravity conveyors, light, medium and heavy duty. Completely adequate for a wide range of handling applications.

No. 138 Light Duty

For low cost carton and package handling. Rust resistant rollers, available in 12" and 18" widths.

Medium Duty

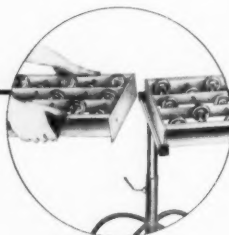
Gravity wheel or roller conveyor in 12", 15" and 18" widths, steel or aluminum, and featuring the QUICK-EEZ Coupling.

No. 190 Heavy Duty

Roller available in 15", 19" and 25" widths for high capacity handling.

**Write Today
for literature**

Representatives
in Principal Cities



*And, set-up is a snap with
Buschman Portable Conveyors.
Both ends are the same — an
exclusive Buschman advantage.*

Every Way Better



THE E. W. BUSCHMAN CO.

4450 Clifton Avenue, Cincinnati 32, Ohio

C-355-EWB

CONVEYORS FOR EVERY INDUSTRY

Circle 25 on Reader Service Card for more information

M H EXPERTS IN TECH SESSIONS . . .

(continued from page 75)

Jonathan L. Collens

"What Should the Material Handling Man Know about Business Economics?"

Manager, Large Motor Div., Reliance Electric and Engineering Co. Has held such job titles as process engineer, chief industrial engineer, general superintendent, and division manager. Graduate, Yale University and Harvard Law School.

Roland Puder

"How Do You Pay for New Equipment—Lease, Rent, or Purchase?"

Group supervisor, engineering department, E. I. du Pont de Nemours & Co. Has done project engineering and production work for several other firms. Puder has also taught at Polytechnic Institute of Brooklyn.

The American Society of Mechanical Engineers June 10

A. T. Gaudreau, session chairman

President of A. T. Gaud-Reau Associates, a material handling consulting firm. Specializes in analyzing and improving plant operations, modernizing old plants and warehouses, laying out new ones, and mechanizing material handling operations. An author and teacher, Gaudreau has conducted graduate engineering courses at the University of Pittsburgh.

Byron W. Saunders, session chairman

Professor in the College of Engineering, Cornell University, teaches production engineering research. An author and speaker on production engineering and material handling subjects. Saunders is a member of the College-Industry Committee in Material Handling Education. Graduate, University of Rhode Island (BS) and Stevens Institute of Technology (MS).

M. A. Michel

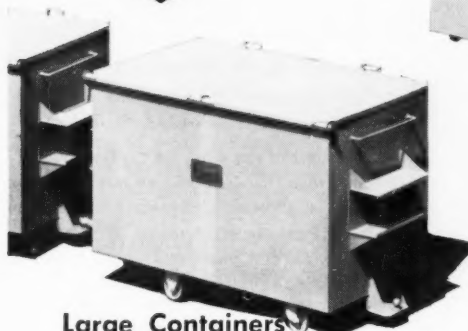
"Mechanized Freight Handling at

cut disposal costs by two-thirds...

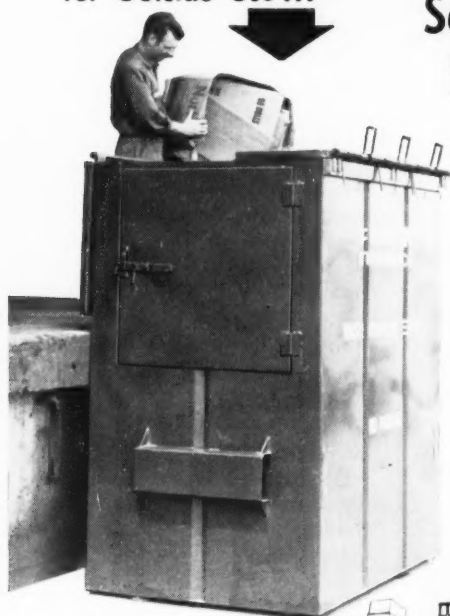
Containerize Waste as it Accumulates...

Patents Pending

Small Tracking
Containers for
Indoor Use...



Large Containers
for Outside Use...



Mfd. By
DEMPSTER BROTHERS
Inc.

Self-Loading DEMPSTER-DUMPMASTER Handles 6 Sizes of Containers...

If you're using boxes, bins, cans or carts to handle or store big-volume waste and refuse, you can reduce costs by more than two-thirds with the new DEMPSTER-DUMPMASTER System of waste storage and collection.

One Dumpmaster serves any number of detachable metal containers placed at waste accumulation points. Making its rounds, the Dumpmaster picks up each container, in turn, empties the contents into its packer body and compresses the material to a fraction of its former volume assuring big pay loads on every trip to the disposal area.

The DEMPSTER-DUMPMASTER is economical! One man operation. It's safe! Clearance lifting arms never pass the cab windows, can't injure operator. Containers can be used indoors or outdoors, on ground, below grade or on a dock.

This system is also available on a monthly fee basis through a nearby DEMPSTER-DUMPMASTER equipped private hauler, (name furnished on request).

WRITE TODAY FOR FREE BROCHURE



**DEMPSTER
DUMPMASTER®**
SYSTEMS



Dept. F-5 DEMPSTER BROTHERS, Knoxville 17, Tennessee

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MAY, 1959

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M H EXPERTS IN TECH SESSIONS

Continued

Railroad Terminals

Assistant chief engineer, Pittsburgh & Lake Erie Railroad. Duties include engineering staff work and special studies for management involving improvements in rail operations. Michel is a member of the American Railway Engineering Association. Graduate, Baltimore Polytechnic Institute.

Foster L. Weldon

"Some System Design Considerations in Containerizing Ships' Cargoes"

Director of research, Matson Navigation Co. Formerly with the operations research office, Johns Hopkins University. Weldon served as warfare advisor to the Joint Chiefs of Staff when connected with the Department of Defense. Graduate, University of Minnesota.

John Moskowitz

"Coal Handling Facilities at a

Power Generating Plant" (with William O'Grady).

Engineer in charge, station services branch, mechanical engineering division of Philadelphia Electric Co. Responsible for design of coal handling systems, fuel oil systems, railroad facilities, roads, and condenser water systems. Graduate, Lehigh University.

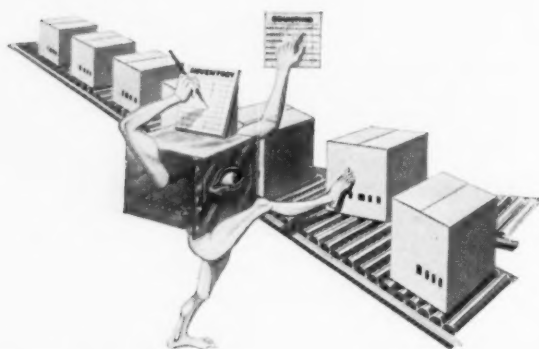
William O'Grady

"Coal Handling Facilities at a Power Generating Plant" (with John Moskowitz).

Project engineer in the construction division of Philadelphia Electric Co. Has worked on various projects involving additions to generating stations and steam heating plants. Graduate, University of Pittsburgh.

NEW

AUTOMATIC HANDLING OF PACKAGED GOODS



Reads printed codes automatically.

SELECTIVE automatic counting and sorting of MIXED products are now possible with Atronic 400 Series transistorized carton selector equipment. Your materials handling can be thoroughly modernized at low cost.

Make your operation a model for the industry . . . a point of company pride . . . and a new source of company profit. Write today for details.

ATRONIC PRODUCTS, INC.

BALA CYNWYD, PENNA.

AN AFFILIATE OF GENERAL ATRONICS CORPORATION

Circle 156 on Reader Service Card for more information



George E. Waldron

"An Engineered Case Handling System in a Modernized Brewery"

Production manager, Carling Brewing Co. Held supervisory posts with several brewing firms; has been superintendent of construction and plant engineer. Waldron also taught at Pratt Institute. Graduate, Tufts College.

American Material Handling Society Inc . . . June 11

Joseph F. Carle, session chairman

President, Lincoln Extension Institute, an accredited home study institution which trains industry personnel for industrial management. Has developed courses and special training programs for many industries. Graduate, Kent State University (B.S. and M.A.).

Ralph Reiner, session chairman

Production manager, concrete products, Cleveland Builders Supply Co. Reiner joined this firm after World War II Navy service, was formerly superintendent in the concrete products department. Graduate, Case Institute of Technology.

Norman Schaffer

"The Problems Involved in Getting Personnel To Accept Handling Progress"

Material handling engineer, West-

ern Electric Co. Formerly did wage incentive work and industrial engineering. Author of several technical papers and lecturer. Graduate, Drexel Institute of Technology.

Myron Miller

"Safety Training for Material Handling Personnel"

Supervisor of safety at East Pittsburgh Works, Westinghouse Electric Corp., and regional vice-president of the American Society of Safety Engineers. Previously supervisor of works and industrial relations at the Lima plant of Westinghouse. Graduate, Iowa State College.

J. J. Vander Molen

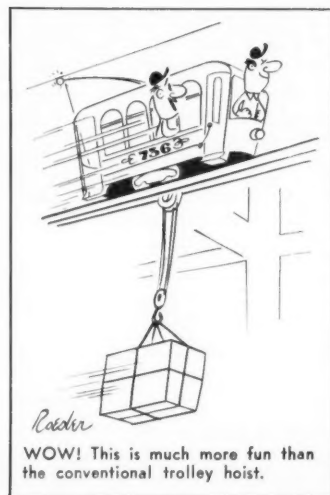
"How Can Material Handling Solve Production Problems?"

Manager of material handling engineering, Crane Co. Was formerly a consulting engineer specializing in material handling and physical distribution field. Graduate, Netherlands Institute of Technology.

Thomas Wharton

"What the Material Handling Engineer Should Know about Packaging"

Vice-president and manager of the Washington, D. C. Division, Container Laboratories, Inc., specializing in government packaging problems. Formerly with the Department of the Army General Staff as Chief of Packaging Section. Graduate, University of Maryland.

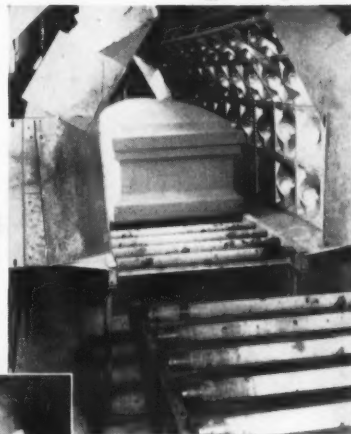


OLSON CONVEYORS Eliminate In-Process "BOTTLENECKS"

At Elgin Metal Casket Company

Caskets glide swiftly and smoothly on Olson Roller Conveyors. From initial welding through and between prime coat and inspection operations, in-process work no longer stacks up. This Olson installation is paying for itself.

Casket passing through infra-red drying oven on Olson Roller Conveyor following cleansing bath. Nearly 800 feet of Olson Conveyors are used by this Elgin, Illinois firm—one of the nation's leading manufacturers of high quality metal caskets.



In the spray booth, Olson pneumatic turntable raises casket free of the main roller conveyor. This permits operator to spray all surfaces from one position. Olson Roller Conveyor Turntables are ideal for transfer between conveyor lines, assembly or inspection of bulky units.



Casket leaves spray booth. Set of three parallel Olson Roller Conveyors double as temporary storage awaiting final finishing operations. Elgin Metal Casket Company sustains only preventive maintenance on its Olson Conveyors.



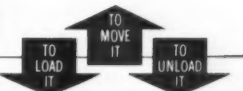
Olson Conveyors and material handling equipment can do a similar, profitable job in your plant—with guaranteed performance at low cost.

Specify

OLSON CONVEYORS

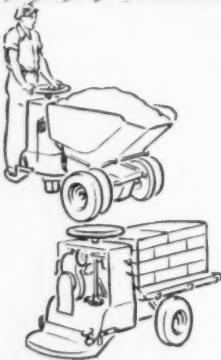
Manufactured by SAMUEL OLSON MFG. CO., INC.
2426 Bloomingdale Avenue • Chicago 47, Illinois

DIVISION OF CHERRY-BURRELL CORPORATION
Circle 153 on Reader Service Card for more information



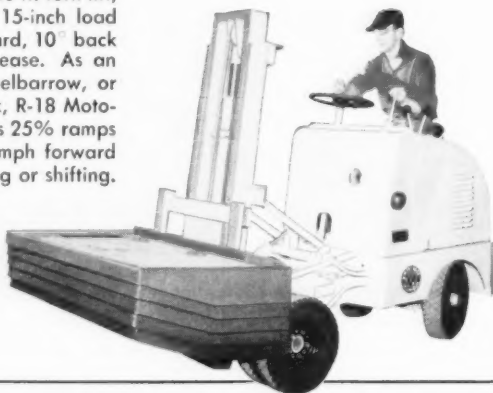
TWO

low-cost fork lifts with quick-change attachments



KWIK-MIX S-10 — At exceptionally low-cost you can mechanize your material-handling with one basic unit and easily-changed attachments. For example: As a fork lift, S-10 Moto-Bug lifts 1000 pounds (at 15-inch load center) — has a 7½-ft. lifting height. Weighs only 1625 lbs. Forks are 20 or 30 inches long, adjustable 6 to 32 inches wide for handling boxes, crates. Hydraulic power raises, lowers load. As a 10 or 15-cu. ft. power wheelbarrow or 34-inch x 4-foot flatbed truck, S-10 Moto-Bug hauls 1500 lbs. and climbs 16% ramps fully loaded.

BIG R-18 — with 7½-ft. fork lift, handles 1500 pounds at 15-inch load center. Mast tilts 2° forward, 10° back for load pick-up and release. As an 18-cubic foot power wheelbarrow, or 42 x 54-inch flatbed truck, R-18 Moto-Bug hauls 3000 lbs., climbs 25% ramps fully loaded. Travels 12 mph forward and reverse — no clutching or shifting. Has 780 lbs. drawbar pull; 5-ft. utility blade. Exhaust fume-control unit, or L.P. gas equipment is optional on both models. See your Kwik-Mix distributor or write.



mail to: KWIK-MIX CO., Port Washington, Wis. Send facts on: ☐ R-18 ☐ S-10 Moto-Bug

NAME _____ TITLE _____

COMPANY _____ DIV _____

ADDRESS _____

☐ Also send literature on new 22½-foot (4000 to 6000 lb.) Hi-Lifter fork truck.

KW908 MHE



KWIK-MIX® MOTO-BUG®

Division of
Keehring

SELECTION AND USE OF VIBRATING CONVEYORS . . .

(continued from page 78)

along the steel conveyor trough could be reduced to a satisfactory level by applying 1/8 inch sheet of Neoprene rubber to the trough.

Food Plants — Conveying surfaces can easily be cleaned and sterilized. Often stainless steel troughs are used. And in the trough there are no corners to catch and hold food particles. These sanitary features and the versatility of vibrating conveyors suit them to a wide range of food processors—from dry cereal manufacturers to seafood packers. These conveyors are used to open clamps, to act as live storage hoppers for feeding large quantities of raw peeled potatoes to slicing machines, to freeze small pieces of meat, screen pickles, and dewater vegetables. At General Mills' Toledo, Ohio plant, exploded granules of dried breakfast food are conveyed from the expansion chambers to packaging machines. The vibrating conveyor is equipped with a scalping screen to remove objectionable oversize granules. Kellogg Co's Battle Creek, Mich. plant uses vibrating units to move breakfast cereal to belt conveyors. In less than 10 feet the vibrating units spread the cereal out evenly. Canning plants often use the conveyors with screens installed in the trough as combination conveyor-dewatering units.

Special vibrating spiral conveyors are used to obtain the extremely long retention times needed for thorough freezing of food products such as meat patties. These conveyors are economical in their use of floor space—a spiral for 45 minutes of retention time requires a floor area of less than 64 square feet while moving the material over the equivalent of 160 linear feet of conveyor.

Cement Mills — Most products handled in cement plants are very abrasive, tend to be dusty, and at various places are extremely hot. Vibrating conveyors can be designed to meet all these conditions. They are used to feed and take the discharge from ball mills and crushers, and to convey and distribute limestone rock and clinker

Circle 79 on Reader Service Card for more information

to raw material storage bins. Hot clinker is most conveniently handled by specially designed conveyors whose troughs are free to expand or contract with temperature changes in the material.

Foundries — Reliable performance under extremes of impact temperature, dirt, dust, and abrasion is the important reason for the use of vibrating conveyors in foundries. Conveyors used to move hot sand and castings have to take the impact of molds being dumped on them. Grizzly screen sections are used to separate sand from castings. Vibrating conveyors are also used to move hot sand under shakeouts, to cool castings, and for sorting castings.

Steel Mills — Hot-abrasive mill scale has to be removed from under rolling mills. On older plants this material is sluiced from under the rolling mills with tremendous quantities of water. However, since water pollution has become a factor in many industrial locations, this method becomes extremely expensive because of the auxiliary equipment needed. Vibrating conveyors are ideal for handling mill scale because they can resist high temperature and abrasion and can be made in long lengths powered by a single drive.

In sintering plants, vibrating conveyors simultaneously move 3000°F sinter away from the end of the machine and screen it. Other steel mill uses of the vibrating conveyor are in collecting side trim scrap from plate lines, handling coke in the soaking pit area, conveying and quenching hot slag, and feeding open hearth furnaces.

Mining and Ore Benefication

—A typical vibrating conveyor use in an ore screening plant is distributing raw ore across a series of vibrating screens. Through special bottom discharge gates the ore is distributed so as to guarantee maximum screen efficiency and capacity.

Heavy duty vibrating feeders are widely used in this and other industries where large quantities of bulk material must be handled.

In some types of ore beneficiation, continuous leaching is required to extract the mineral frac-

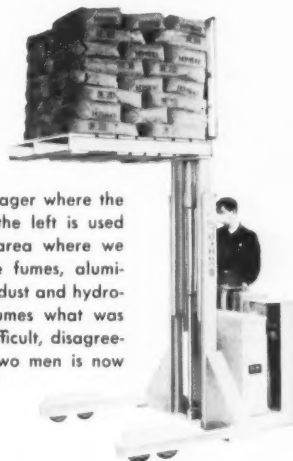
EXPLOSION PROOF CLASS I GROUP D POWERED LIFT TRUCKS

APPROVED and PROVEN



**8 YEARS
ON THE JOB**

Since 1951 Revolvator Go-Getters, designed for this service, have been specifically approved by leading industrial insurance companies for use in Class I Group D explosion hazardous areas in major plants from coast to coast. User comments like those below show that the Go-Getter has been more than approved by safety authorities... it has been proven in use for eight years.

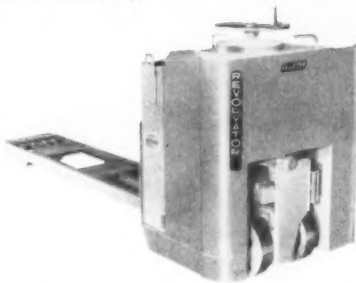


The Plant Manager where the Go-Getter at the left is used says, "In an area where we have explosive fumes, aluminum chloride dust and hydrochloric acid fumes what was previously a difficult, disagreeable job for two men is now easy for one."



Air in the color mixing room of the finishing plant where the Go-Getter above is used carries organic dusts as well as explosive fumes. The foreman says, "The men like the Go-Getter and use it steadily."

Executives in the chemical plant where the model to the right is used say, "We use the Go-Getter in our area which has the most severe hazard." Another plant where quantities of explosive solvents are used for "wash down" reports of a similar model, "We are well pleased and we are ordering another Go-Getter."



A major insurance association writes, "We are quite willing to accept the unit (Go-Getter) as it is designed with explosion proof housings for the motors and controls as usually specified for electrical equipment that can be safely used in explosion hazardous areas."

A nationally known safety engineer writes, "... calling the existence of this line of trucks to the attention of the industry as we believe many would want to know about this equipment."

The Go-Getter is the latest addition to a complete line of materials handling equipment for use in explosion hazardous areas that Revolvator has been building for over a quarter of a century.

REVOLVATOR CO.

8739 TONNELE AVENUE, NORTH BERGEN, N. J.
SINCE 1904

Circle 118 on Reader Service Card for more information

SELECTION AND USE OF VIBRATING CONVEYORS

Continued

tions. Ordinarily, this is a batch operation and the material has to be moved from vat to vat. However, leaching can be done continuously on an inclined vibrating conveyor. The solid material is conveyed uphill slowly against a current of acid or strong base wash, followed by clean wash areas if needed. Convenient drains can be arranged for the leaching

liquids. Spillage is prevented, a batch-type operation is made continuous, and costs can be greatly reduced.

Chemical Processing—Horizontal vibrating conveyors are often used by the chemical industry. They convey several different materials in one conveyor without mixing. This is easily done by a trough separated with vertical dividing strips.

Heat transfer of all types is possible with vibrating conveyors.

Unlike other types of coolers, heaters, and dryers they have the ability to process small and intermediate quantities at low unit cost. Three basic types of heat transfer are possible with special trough designs: 1. Direct heating gas burners or electric strip heaters can be mounted over the conveyor trough to heat the material which passes underneath. 2. Heating, cooling, or drying air can be forced through the material as it vibrates across a screen. 3. The trough can be constructed with steam or water coils which indirectly heat or cool the product.

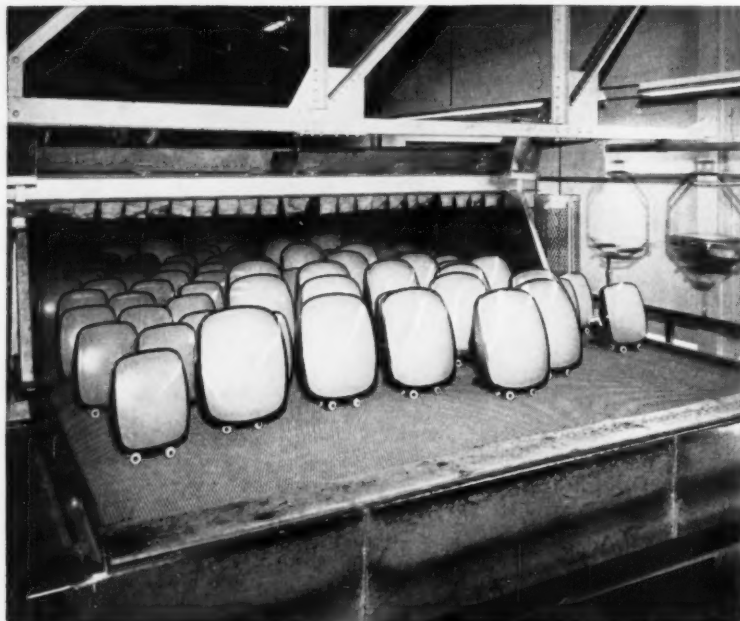
Paper Mills—Three completely different materials are commonly handled on vibrating conveyors in paper mills: 1. Wood bark is conveyed to and distributed equally between burners which fire large steam generators. The bark is divided up by a special conveyor which can reject the occasional large log which would jam the burner feed chutes. 2. Hot lime as discharged from kilns or coolers at temperatures often above 2500°F. 3. Pulp logs which are fed to a special vibrating conveyor in full clam shell loads as large as a cord per dump. These vibrating conveyors also orient the log.

Glass Manufacturing—Vibrating conveyors easily carry broken glass that would be destructive to other types of conveyors. Vibrating conveyors can be used to quench, granulate, and dry a flow of molten glass in a single operation. The conveyor is inclined and holds a pool of quench water (constantly replenished) at its feed end. The molten glass is instantly quenched and granulated by the water.

Ceramic Industry—Clay tile mix is often dried in vibrating conveyors. Gas burners are mounted over the troughs. Long retention times are obtained in a small area by placing troughs in a zig-zag pattern. The ceramic industry also uses screens in standard conveyors to combine material movement and product separation without dusting or spilling.

In addition to Carrier Conveyor Corp., MHE wishes to thank Ajax Flexible Coupling Co. Inc., The Cleveland Vibrator Co., Eriez Manufacturing Co., Gifford-Wood Co., The Jeffrey Manufacturing Co., Link-Belt Co., Simplicity Engineering Co., Stephens-Adamson Mfg. Co., and Syntron Co.

Keep Your Product on the Move



TV tubes emerge from a bake-out oven on a 12' wide Ashworth Belt

with ASHWORTH METAL PROCESS BELTS

Every industry has its problem of moving materials during processing. Fabricated from any metal capable of being formed into wire, Ashworth Belts provide a conveying medium permitting processing in transit through temperatures from -50° to 2100° F. Wherever your product must go during processing, be sure to get the "right" belt for the job . . . consult an Ashworth engineer.

Ashworth Metal Process Belts can help you effect economies . . . and keep your product on the move.

Illustrated literature available

ASHWORTH BROS., INC., WINCHESTER, VIRGINIA

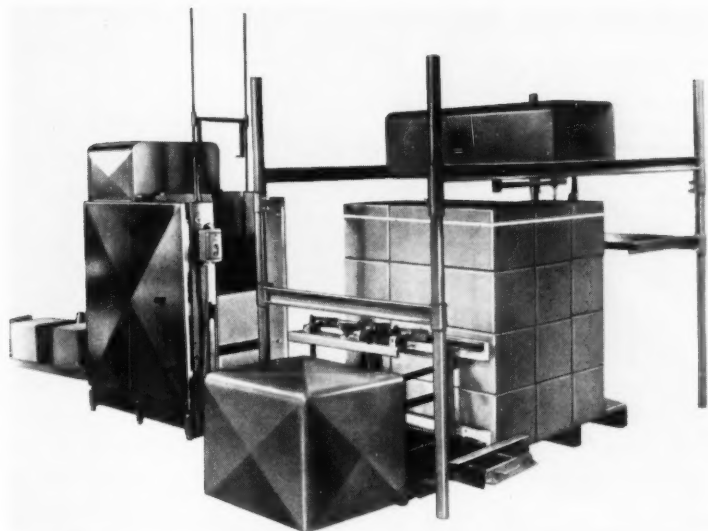


SALES ENGINEERS: Atlanta, Baltimore, Boston, Buffalo, Charlotte, N. C., Chicago, Cleveland, Dallas, Detroit, Fall River, Mass., Greenville, S. C., Louisville, New York, Philadelphia, Pittsburgh, Rochester, St. Louis, St. Paul, Tampa, Canadian Rep., Peckover's Ltd., Toronto, Montreal.

Circle 9 on Reader Service Card for more information



NEW EQUIPMENT SECTION

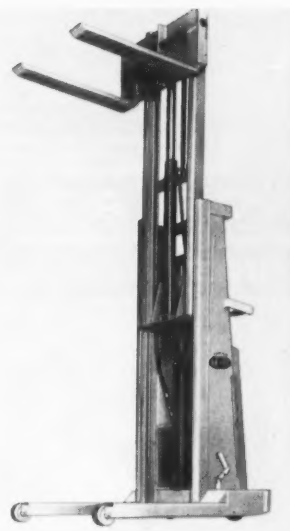


Pallet Loader Needs No Operator

A new automatic pallet-loader consists of three synchronized, separately powered units: stacker, pusher, and taper, plus a conveyor to connect to production lines. It can be used in all industries using cases, cartons, kegs, and other containers. The loader uses no electronic or hydraulic devices, needs no operator. Since the unit can be placed on the floor and connected to production lines, installation cost is low. Another feature is a taping machine which applies a strip of pressure-sensitive tape to the top layer of units loaded on the pallet. This stabilizes the load, since the loader uses the space-saving straight-stack system.

Lathrop-Paulson Co.

Circle 301 on Reader Service Card for more information

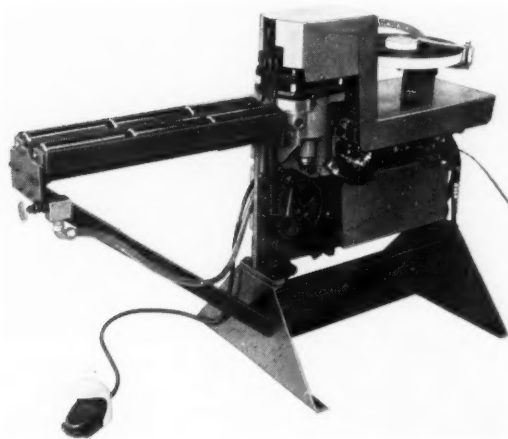


Redesigned Lifts

The E-Z Lift line of portable stacking trucks has been completely redesigned. Thirty-five standard models have been added to the line, which includes telescoping forks. This feature allows the E-Z Lift to stack in low ceiling areas and still be capable of lifting loads as high as 130 inches.

Crown Controls Co., Inc.

Circle 302 on Reader Service Card



Straps All Size Packages

The Model F4 strapping machine provides fast steel strapping for all types and sizes of packages or bundles. With the F4, electric and pneumatic power are substituted for manual effort to increase speed and reduce operator fatigue. Each strap is applied with the same tension, which is adjusted by a dial. There are no limitations on the package size which can be strapped since the machine has unlimited strap feed and take-up. Seals are fed from coils. Three to five thousand seals, depending on the size strapping used, are contained in each coil. This permits long runs without reloading. The Model F4 fits easily into conveyors. Items to be strapped may flow to the machine from either right or left.

Acme Steel Co.

Circle 303 on Reader Service Card for more information

NEW EQUIPMENT SECTION

Handle Difficult Material

The manufacturer of Dura-Buckets says they are a big factor in reducing hazards of handling cor-



rosive, abrasive, and other difficult material. It operates within broad temperature ranges, withstands moisture, will not rust or corrode. Its interior is seamless and smooth; this allows the Dura-Bucket to empty clean with each pass over the head pulley.

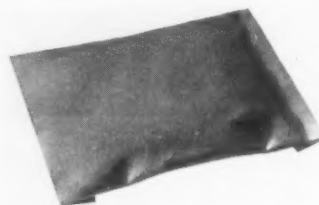
*Dura-Bucket Div.,
National Oats Co.*

Circle 304 on Reader Service Card

Bag Improvements

Today the liner of this padded shipping bag is made of 70 pound

Clupak stretchable kraft. Ten years ago it was made of 50 pound regular kraft paper. The new kraft has almost 2½ times the strength

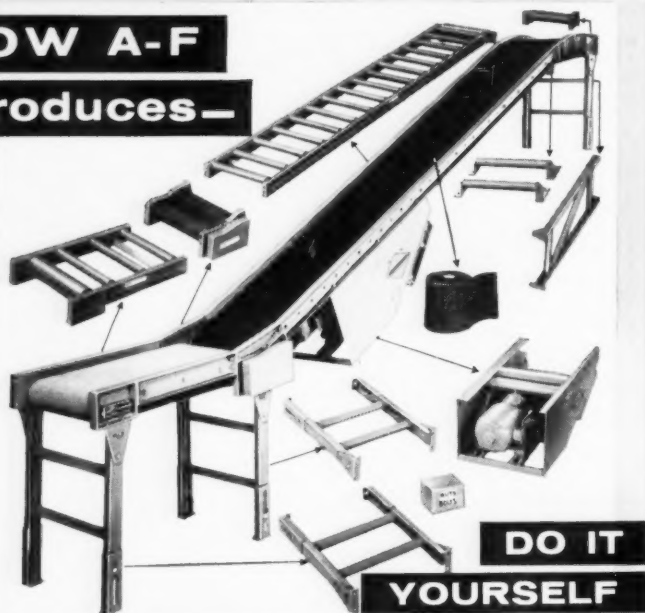


of its predecessor, says the manufacturer. Folding score lines and serrated edges have been added for greater convenience. Improved adhesives withstand temperature extremes.

Jiffy Manufacturing Co.

Circle 305 on Reader Service Card

NOW A-F Introduces—



BELT CONVEYOR COMPONENTS

Easily Assembled into Custom Units!

SEE! HOW EASY IT IS! Even unskilled personnel using common mechanic's hand tools can now erect level, inclining, or declining roller bed belt conveyors of any desired length by using A-F's new "E-Z Bild" belt conveyor components.

A-F "E-Z Bild" units are available in belt widths of 10, 14, 18 and 22 inches.

A-F pre-engineered Belt Conveyor Components include

straight intermediate sections, top curves, feeder sections, drives, take-ups, belts, idlers, floor supports and ceiling hangers. Side frames permit bed rollers to be set high or low. We can also supply reversible end and center drives in a wide range of speed and horsepower ratings, also live roller components.

Need a belt conveyor or live roller conveyor soon? Write, wire or telephone — today



A-F ENGINEERED CONVEYING SYSTEMS

Also Pre-Engineered Conveyors—
Wheel, Trolley, Roller, Belt
Metal Cleaning and Processing Machines

THE ALVEY-FERGUSON CO. • 434 Disney St. • CINCINNATI 9, OHIO

Circle 5 on Reader Service Card for more information

Portable Dock Curbing

These lightweight lengths of portable magnesium safety dock were developed to eliminate the danger of industrial trucks being



driven off truck docks. The curbing sections are positioned in pre-drilled holes spaced along the dock edge. No bolting is necessary. Designed with hand holes, each section can be lifted and carried by one man.

Magnesium Service Co.

Circle 306 on Reader Service Card

Tractor Improvements

Over the past few years, the Tournatractor has gone to a 218 horsepower rating with top speed



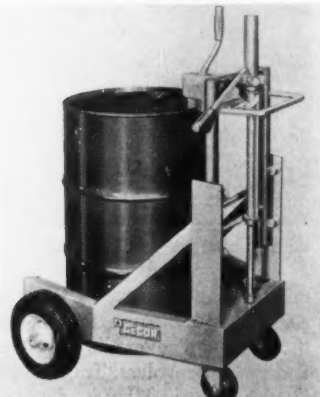
of 17.2 mph. It has transformed from air-actuated control to all-electric control. Other changes: transmission is now a separate unit; formerly it was an integral

part of the main case. A torque converter has been added.

LeTourneau-Westinghouse Co.
Circle 307 on Reader Service Card

Drum Handler

Drum handling can be made easy, says the manufacturer of the CeCOR Model 66 drum handler. When you push the handle, the jaws clamp onto the drum chime.

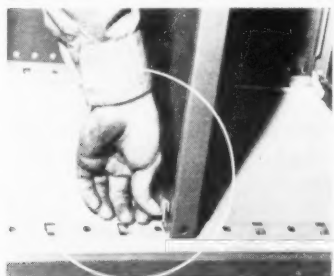


Then a hydraulic pump lifts the drum. The operator does no lifting. Production, maintenance, warehousing departments are places where the Model 66 could have many drum handling applications.

Coolant Equipment Corp.
Circle 308 on Reader Service Card

Shelf Fastening

Thumb and forefinger are the only tools needed to install, remove, or reposition shelves in the Hollowell Erectomatic system. The shelf is first positioned on supports. Then four pivoted locks,



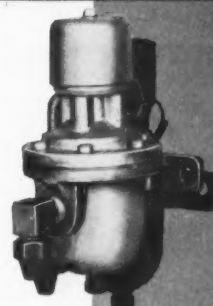
one at each end of the two shelf supports, are swung into place to engage the lower flange of the shelf. The result is a firm lock, yet one that can be quickly opened for repositioning the shelving.

Standard Pressed Steel Co.
Circle 309 on Reader Service Card

Why CENTURY provides the best LP-Carburetion Systems

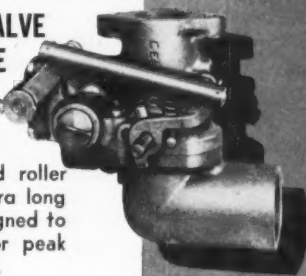
1 ONLY U/L APPROVED INTEGRAL FILTER SYSTEM AVAILABLE

The ultimate in filtering action is guaranteed with the exclusive Century triple action chamois-felt-screen system. These fuel locks require only one simple installation procedure. Full range from only two basic models for all type engines.



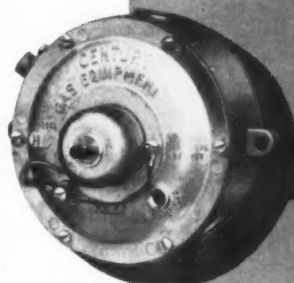
2 THE ONLY FUEL METERING VALVE TYPE CARBURETOR AVAILABLE

These special LP-Carburetors guarantee correct air-fuel mixtures at any altitude, temperature, speed and power range. Exclusive sealed roller bearings on throttle shaft insure extra long use. The Century carburetor is designed to replace the gasoline carburetor for peak performance and economy on LPG.



3 HIGH CAPACITY CONVERTER, MOST COMPACT MOST DEPENDABLE

These sturdy light weight converters consistently generate more horse power, yet are the lightest weight units on the market. More compact too . . . regulator and vaporizer all in one unit. Easier to install . . . requires only one line between carburetor and converter.



CENTURY . . . The Most Complete Line Available...Simplest to Install...Easier to Buy...Models for All Size and Type Vehicles

Ask the Man from Century for installation tips... on the spot service



CENTURY
LP-GAS CARBURETION



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CENTURY GAS EQUIPMENT
Marvel-Schebler Products Div.
Borg-Warner Corporation
Decatur, Illinois

See us at the LPG SHOW—CHICAGO, May 3-6, Booth #164-165
Circle 28 on Reader Service Card for more information

CASE. 210 *Utility* LOADER

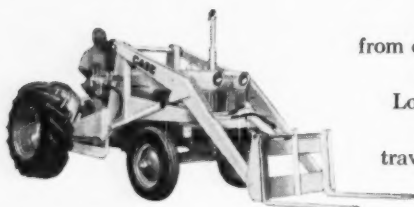
with 11-cu. ft. bulk-material bucket

\$2598⁰⁰ f.o.b. Add freight, taxes, installation.
Price subject to change w/o notice.

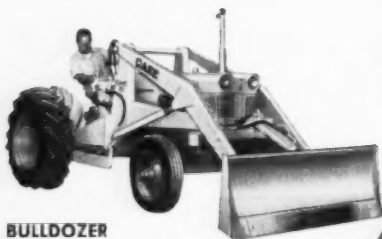
Optional crane boom attachment lifts 15' high, reaches out to stack or pick-up bulky articles in hard-to-reach high places.



5-minute tool switch-over makes ONE-MAN "TASK FORCE"



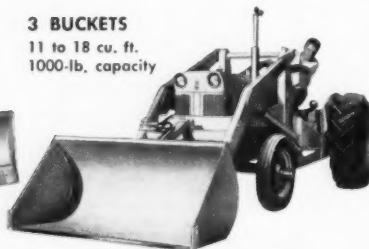
PALLET FORK
1000-lb. capacity,
adjustable tines



BULLDOZER
6' tilting blade

In 5 minutes you can switch from one type handling job to another with versatile, Case 210 Utility Loader and multiple attachments. Speed and maneuverability cut travel time. Complete line of tools for lawn preparation and mowing, road maintenance, sweeping, snow removal, and other around-plant chores. Easy monthly lease or purchase plans available.

3 BUCKETS
11 to 18 cu. ft.
1000-lb. capacity



Write, wire, or phone
for full information

CU-L-106

CASE®

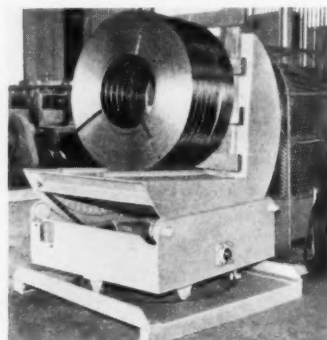
J. I. CASE CO., RACINE, WIS.
DEPT. E1609

Circle 155 on Reader Service Card for more information

NEW EQUIPMENT SECTION

Simplifies Coil Loading

This turnover cradle rotates and palletizes 6000 pounds of coils in only 14 seconds. One man can un-



load, palletize, weigh, and store a 40,000 pound carload in 35 minutes. After the pallet is set on edge, heavy coils are forked onto the cradle. The cradle tips back and its base revolves. Thus the coil is palletized and ready for fork lifting.

La Deau Mfg. Co.

Circle 310 on Reader Service Card

Plywood Storage Cabinet

This multipurpose storage box of Texture One-Eleven fir plywood has three removable shelves that



slide quickly in and out of the grooves in the walls of the box. Shelves can be adjusted to hold any size merchandise.

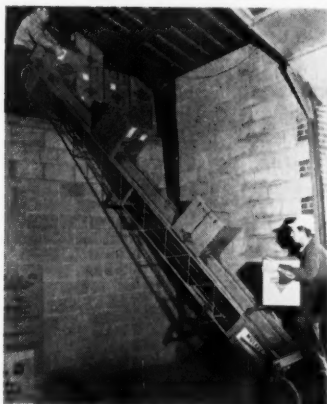
Douglas Fir Plywood Association

Circle 311 on Reader Service Card

Portable Conveyor

There are many ways to use the Utilaveyor, says its manufacturer. For example, a 16-foot unit can be carried on a pick-up truck to handle building material on the job site. The same basic unit can

MATERIAL HANDLING ENGINEERING



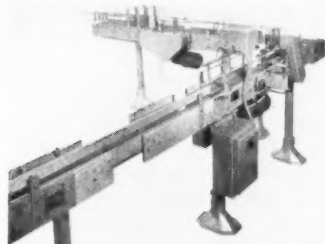
be expanded to lengths of 24, 32, or 40 feet and retain its easy portability. The Utilaveyor can be powered by a gas engine or electric motor.

Sam Mulkey Co.

Circle 312 on Reader Service Card

Automatic Checkweighing

This automatic checkweigher receives two lines of open packages from automatic filling machines. They converge into a single line



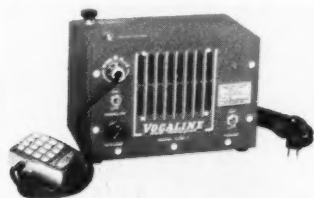
which discharges to the checkweigher. Overweight or underweight packages are rejected. Then a non-metallic conveyor with a metal detector and an automatic reject device takes the package to the top closer.

Hi-Speed Checkweigher Co. Inc.

Circle 313 on Reader Service Card

Industrial Radio

The CUB-1/MT-1 transceiver operates at 465 megacycles, is de-



signed for base station operation. This remote controlled Citizens

MAY, 1959

THE COST OF YOUR BATTERY



Don't be fooled by lower prices. The **true cost** of your battery depends on many factors. Life of the battery . . . man hours saved . . . full shift operation—all these and more determine the **true cost** of your battery. EDISON'S price is higher but you will find its **cost** is lower, **much lower**. See for yourself. Send for EDISON'S "Extra Dividends" booklet today.

COMPARE EDISON—THE HIGHER PRICED BATTERY THAT COSTS LESS.

1. Longer life—lower depreciation 2. Reduces maintenance cost 3. Durable—no sudden failures 4. Full shift performance 5. Fully automatic charging 6. No corrosive fumes 7. Lowers truck operation cost 8. Can stand idle indefinitely 9. Withstands temperature extremes 10. Other uses after heavy duty life 11. Lighter weight 12. Edison Nationwide Service.

EDISON SERVICE . . . EDISON

Field Engineers are at your service to check regularly and help maintain EDISON batteries. They will recommend, also, the best, most economical type and size batteries for your specific needs. Write Storage Battery Division, Thomas A. Edison Industries, W. Orange, N. J. In Canada: International Equipment Co., Ltd., 90 Bates Rd., Montreal, P. Q.

EDISON NICKEL-ALKALINE STORAGE BATTERIES

Another Product of



Circle 94 on Reader Service Card for more information

NEW EQUIPMENT SECTION

Band transceiver will eliminate the signal losses incurred when operating series JRC Citizens Band transceivers with a base station antenna, it is claimed. The CUB-1/MT-1 delivers the full power to the antenna because the antenna is built into the remote transceiver. The equipment incorporates a variable squelch control and a squelch on-off switch.

Vocaline Co. of America
Circle 314 on Reader Service Card

Work Transfer Systems

Conveyors, 2 to 12 inches wide, are work transfer devices for moving harness cable boards, bulky



units, electro-mechanical assemblies. Conveyor lengths run 15 to 30 inches. Motor drives of

various types are in the line, both constant speed and variable, with speeds from 0 to 200 feet a minute. One feature of the line is the availability of constant tension devices that eliminate the problem of continual belt adjustment.

Alden Systems Co.
Circle 315 on Reader Service Card

V-Belt Drive

This line of V-belt drives features smaller, lighter sheaves and V-belts of higher capacity. Called Dyna-V, this line covers the complete range of horsepower capa-



cities. It enables most industrial drives to be handled with belts only $\frac{3}{8}$ inch wide and sheaves that are greatly reduced in both width and outside diameter. Dyna-V drives come in two standard groove sizes: the $\frac{3}{8}$ inch (nominal top width), known as the 3V and the $\frac{5}{8}$ inch, known as the 5V.

Dodge Manufacturing Co.
Circle 316 on Reader Service Card

Rider Power Sweeper

The Model 53 rider-type power sweeper travels at speeds up to five



BIG capacity
WIDE versatility
LOW
operating cost



New (Model 734) Heavy Duty

CUSHMAN[®] ELECTRIC TRUCKSTER

Now you can carry up to a half-ton payload plus operator and passenger in a safe, silent, efficient Cushman Electric Truckster — gain extra convenience and economy.

Particularly suited for applications where gasoline powered equipment is not feasible, the three-wheeled Cushman Electric Truckster is easy to handle, easy to maneuver in cramped quarters.

Rigid unitized construction... heavy duty rear suspension... wedge type drive belts... a big 45 $\frac{3}{8}$ " by 61 $\frac{1}{2}$ " flat bed that can be equipped with stake racks... all add up to a rugged work-horse. Powered with heavy duty batteries, the 734 Electric Truckster travels up to 50 miles without recharging for a minimum operating cost. Fiber glass cab is available as optional equipment.

Ask your dealer for FREE demonstration or write for illustrated literature
Sold and serviced nationally — replacement parts immediately available
Dealer inquiries invited

CUSHMAN MOTORS
A Subsidiary of Outboard Marine Corporation
Lincoln, Nebraska



CUSHMAN MOTORS
1053 No. 21st, Lincoln, Nebr.

Please send complete information on the 734 Electric Truckster.

NAME _____
ADDRESS _____
CITY _____ STATE _____

Circle 37 on Reader Service Card for more information

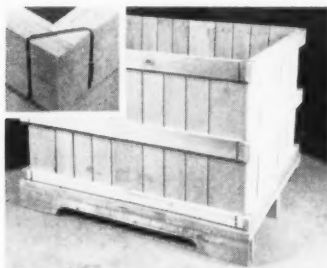
mph, cleans a path 28" wide (40" with sidebrush). Dual pedal controls eliminate hand shifting. On-the-run pickup of both heavy bulky debris and fine dust at the same time is also a feature. A high-speed 28" main brush hurls heavy dirt directly forward into a 4.5 cu. ft. hopper. A high volume 430 cfm fan sucks up lighter dust, forcing dirt-laden airstream through a fabric filter.

G. H. Tennant Co.

Circle 317 on Reader Service Card

Collapsible Pallet Box

Now undergoing field tests is a pallet box with separate sides that are joined together with simple wire ties at the corners. These ties



are twisted closed in pre-cut notches. Simply cut them to disassemble the box. The four side panels are completely wireless, formed by stapling the slate to the outside cleats. Corners are strong, leak-proof.

General Box Co.

Circle 318 on Reader Service Card

Stevedoring Truck

Designed especially for stevedoring, the FTS 60-24 has a 6000 pound capacity with a 24 inch load



center. Ground clearance is sufficient for easy movement over dunnage, rails, and other normal obstructions found on docks and in ships' holds. This truck has a



"HI-CLIMBER" "SKY-KLEET"

*Two Ways to Save...
on Handling Costs!*

"HI-CLIMBER"®

Heavy-duty incline conveyor belting. Used for handling cartons, boxes, baskets, bags, cans, etc., with the consistent reliability that means low conveying costs. Special diamond-impression non-slip surface keeps packages in place on inclines up to 40°. Widths up to 44".



"SKY-KLEET"®

Specially-designed rubber cleats available on Goodall Conveyor Belting used for handling packages, small parts, stampings, minerals, chemicals, etc., on fixed or portable conveyors. Cleats are integrally molded to the belt. Standard spacing—multiples of 12". Special spacing on request.

"If it's GOODALL, it MUST be Good!"

Contact Our Nearest Branch for Details and Prices

Standard of Quality—Since 1870



HOSE • BELTING • FOOTWEAR • CLOTHING
AND OTHER INDUSTRIAL RUBBER PRODUCTS

GOODALL Rubber Company

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
BRANCHES AND DISTRIBUTORS THROUGHOUT THE UNITED STATES.
IN CANADA: GOODALL RUBBER CO. OF CANADA LTD., TORONTO.

Circle 166 on Reader Service Card for more information

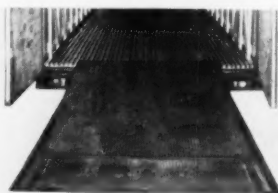
NEW EQUIPMENT SECTION

quickly removable counterweight; without counterweight, the truck is within the lifting capacity of the ship's gear. It is claimed that the truck's overall height of 33 inches, width of 42 inches, and length of 92 inches (less forks) provide compactness and maneuverability in confined quarters.

*Engine-Material Handling Div.,
Allis-Chalmers Mfg. Co.*
Circle 319 on Reader Service Card

Modernize Your Dock

The Holleen dock plate is furnished as a complete structural steel unit, completely assembled.



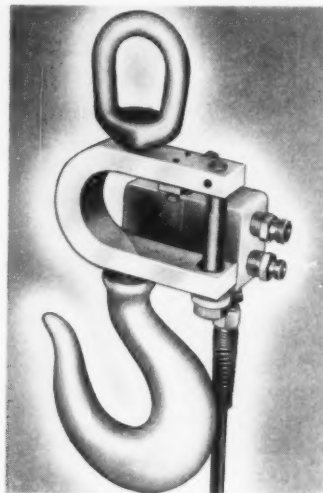
No pit or forming is necessary. The fully framed unit is set and leveled and concrete poured

around framing. According to the manufacturer, the dock plate provides low-cost installation in new or old docks.

Trempla Manufacturing Co.
Circle 320 on Reader Service Card

Prevents Overloading

A new addition to the Dyna-Switch line offers protection against accidental overloading of hoists and cranes. The unit has sensitive control switches housed



in a heavy metal junction box. This seals out rain, dirt, moisture, dust. When a crane attempts to lift a load that is over the predetermined danger point, the Dyna-Switch shuts off the current. Switches can be tailored to individual specifications.

W. C. Dillon & Co., Inc.
Circle 321 on Reader Service Card

WISCONSIN
parts and service
conveniently
available...
AT ANY TIME

Let's face it — even Wisconsin heavy-duty air-cooled engines need service and parts occasionally! This honest approach has an equally realistic stop-gap — the ever-ready network of authorized Wisconsin service stations where parts and service are available on a moment's notice. As a result, you're never caught with your engines down for long because Wisconsin service is as near as your telephone.

**Over 2000
authorized
WISCONSIN
service
stations
are on call
if and when
you need
service!**

You can rely on expert service by Wisconsin-trained personnel. Most of them are graduates of periodic service clinics and are thoroughly familiar with the design, construction, and operation of Wisconsin engines. Each service station — whether it's in Fairbanks, Topeka, or Mozambique — has a stock of Wisconsin parts to assure fast delivery — to put your equipment back in service with minimum delay.

Wisconsin heavy-duty air-cooled engines are known, used, and respected throughout the world. So are the more than 2000 authorized Wisconsin service stations and their work. You can rely on both to keep your work loads "on-schedule" anywhere, at any time! Write for Form S-198 which lists all the authorized Wisconsin service stations throughout the world.

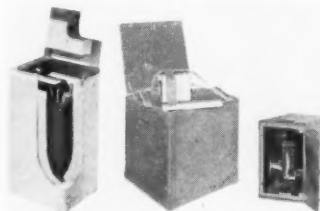
WISCONSIN MOTOR CORPORATION
MILWAUKEE 46, WISCONSIN

World's Largest Builders of Heavy-Duty Air-Cooled Engines



Reusable Box Is Light

Kennett reusable shipping containers are made to protect delicate instruments in transit. They're



strong and light, ideal for air freight, armed forces, etc. Outer surface is vulcanized fibre, either solid or sandwich panel. Three types are available: padded (left),

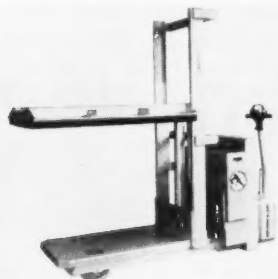
Circle 146 on Reader Service Card for more information

dunnage board type (center), and shock cradle type (right). All three meet ATA specifications for Category 1 containers. Any size, shape, handles, latches, etc.

National Vulcanized Fibre Co.
Circle 322 on Reader Service Card

Load Stabilizer

A load stabilizer attachment has been adapted for use with a line of low-lift walkie trucks. It was designed primarily for handling



skid loads of coated flat paper stock, but is recommended for all types of loads that are not stable. The stabilizer is hydraulically operated from the handle and clamps down on top of the load. Various clamping heights may be furnished to suit the height of the load by the adjustable clamp arm.

Lewis-Shepard Products, Inc.
Circle 323 on Reader Service Card

No-Heat Belt Repair

Patching and sealing material is applied without heat or pressure. When the compounds are



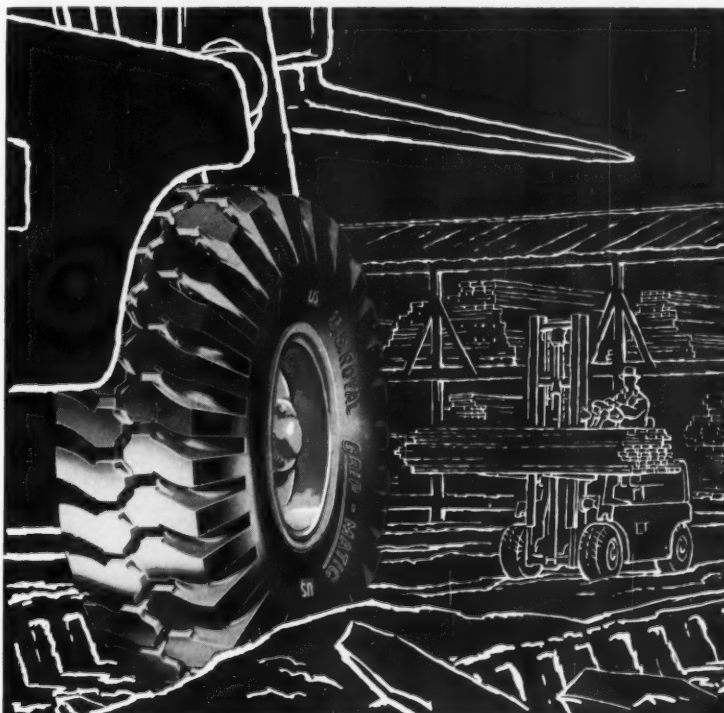
mixed they cure to a tough, resilient rubber at room temperature. Manufacturer says this cold vulcanizing process avoids danger of damage to the belt from overheating.

Automatic Vulcanizers Corp.
Circle 324 on Reader Service Card

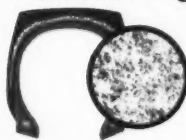
Standard and Special Doors

This manufacturer announces rolling doors for standard open-

NEW **S.R.T.*** DEFIES CUTS, RUPTURES!



*Steel Reinforced Tread makes U.S. Royal Grip-Matic the toughest industrial pneumatic known!



A new kind of industrial tire, all but invulnerable to everyday hazards—the U. S. Royal Grip-Matic with Steel Reinforced Tread!

Here's S.R.T. in X-ray photo—a thick layer of rubber containing thousands of short steel filaments. They form a virtually impenetrable mat between tread and body, exclusive tread and sidewall protection against cuts, ruptures... means less vehicle downtime, increased tire life, reduced tire repairs.

Along with S.R.T., the Grip-Matic's All-Surface Traction Tread gives sure grip on slick surfaces, ramps, yard areas. Better buy—and specify—U. S. Royal!

Write W. J. Shalley, Industrial Tire Dept., for complete industrial tire manual.

U.S. ROYAL TIRES



United States Rubber

Rockefeller Center, New York 20, N. Y. • In Canada: Dominion Rubber Co., Ltd.

Circle 167 on Reader Service Card for more information

NEW EQUIPMENT SECTION

ings, special openings, specialized door service, and experienced door installation. Rolling service



doors, fire doors, and steel rolling grilles are some of the lines manufactured. The illustration shows two 48 x 39 foot aluminum doors over the ends of a 300-ton traveling gantry crane.

The Kinnear Manufacturing Co.
Circle 325 on Reader Service Card

Wire Rope Construction

The Herringbone wire rope construction is a combination of the commonly used regular and Lang lay types. It is fabricated in such a way that the flexibility and

abrasion resistance of Lang lay and the structural stability in regular lay ropes are retained, says



the manufacturer. Herringbone has two pairs of Lang lay strands separated by two strands of regular lay.

John A. Roebling's Sons Corp.
Circle 326 on Reader Service Card

WHAT'S YOUR I.Q. ON DOCKBOARDS?

BUYER: *Why should I buy Langsenkamp Aluminum Dockboards instead of steel dockboards?*

ANSWER: Because Langsenkamp boards are made of a special rust-proof aluminum alloy $\frac{1}{3}$ the weight of steel but equal in its physical characteristics, including capacity. There's little difference in price.

BUYER: *But weight is no problem. We carry ours on fork trucks.*

ANSWER: Right! But you can keep this light-weight board handy—no waiting for the truck. Many customers who have only an occasional heavy load say this high-capacity light-weight board works perfectly.

BUYER: *How does your dockboard maintain the capacity of but weigh less than magnesium?*

ANSWER: Langsenkamp uses a special alloy which matches the tensile strength and yield of steel. Other light-weight boards have only $\frac{1}{2}$ of these physical properties.

BUYER: *You advertise the Langsenkamp board as the safest on the market, too!*

ANSWER: Yes and again metal is the answer. This special alloy flexes when overloaded. Unless consistently overloaded it will keep its original shape. Other metals will break. This is very important to those without absolute load-limit control. And there are no welds that might break.

BUYER: *Why don't Langsenkamp boards have treads?*

ANSWER: Treads get slippery when wet or oily. Our boards are surfaced with a soft, pure-clad aluminum and topped with skidproof latex and sand. The sand becomes embedded by usage. And it can be reapplied on-the-spot if it wears off.

BUYER: *Say no more! You've got a deal!*

WRITE OR WIRE:

F. H. LANGSENKAMP CO.
227 East South Street
INDIANAPOLIS, INDIANA

only
\$49⁰⁰
(24" x 48" size)



Circle 80 on Reader Service Card for more information

New Air Hoist Line

A line of air hoists in capacities from 1000 to 2000 pounds has been introduced recently. Models are available in hook or trolley



types, with pushbutton pendant or pull cable controls. Pictured is the half-ton, trolley type, link chain model equipped with an optional chain container.

*Yale Materials Handling Div.,
The Yale & Towne Mfg. Co.*
Circle 327 on Reader Service Card

Top-Running Crane

The N-TRMD series of overhead cranes is designed for class III



industrial service with capacity range to 20 tons and spans to 60

feet. This series has been redesigned with extensive use of standardized components and interchangeable parts. Features include: heavy duty hoist; heavy duty steel wheels on bridge and trolley; fluid coupled bridge and trolley drives; magnetic bridge brake.

Borg-Warner Industrial Cranes
Circle 328 on Reader Service Card

Hour Meter Data

The use of the engine hour meter permits the establishment of regular lubrication schedules, says this manufacturer. It helps in the establishment of a program



of planned down-time and makes possible studies of machine use. The company manufactures pointer type engine hour meters in 1000 and 10,000 hour models. Direct reading meters record 10,000 hours.

John W. Hobbs Corp.
Circle 329 on Reader Service Card

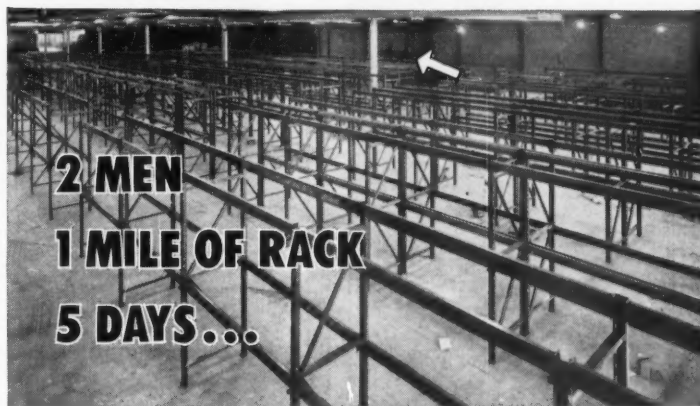
Seals for Poly Bags

A flush, weld-type seal for polyethylene bags makes the seal as strong as the bag itself. The new seal is called Chip-a-Weld, and



equipment for it will be available soon. Polyethylene bags, introduced last year, are being used successfully for shipping chemicals that need positive moisture protection, as well as fertilizers, powdered milk, hybrid seed corn,

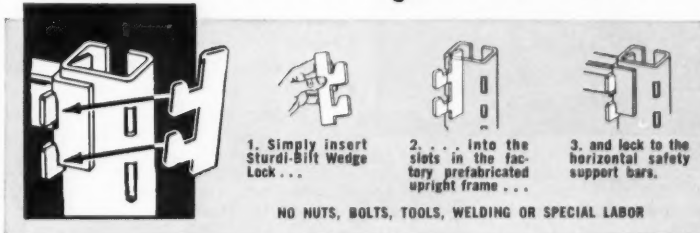
How's this for fast assembly?



...and for adjustability?



...it's done with Sturdi-Bilt "Float Wedge Construction"



RACKS FOR EVERY STORAGE NEED

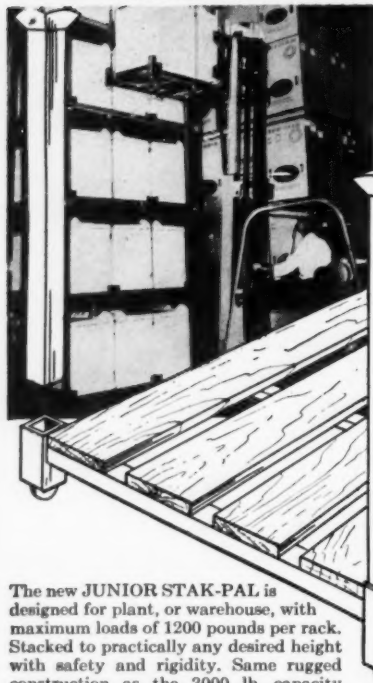
Send for NEW catalog.



U.S. Patent Nos. 2760650, 2815130

Attach this coupon to your letterhead or write:
STURDI-BILT Dept. MHE-59.
Material Handling Division
Union Asbestos and Rubber Company
332 S. Michigan Ave., Chicago 4, Illinois

Circle 165 on Reader Service Card for more information



the new JUNIOR STAK-PAL

A Tubular
Steel Stacking
rack complete with
removeable posts for
as little as \$1220 each,
f. o. b. factory for 100 basic
racks, 30" x 42" with 24" posts.

The new JUNIOR STAK-PAL is designed for plant, or warehouse, with maximum loads of 1200 pounds per rack. Stacked to practically any desired height with safety and rigidity. Same rugged construction as the 3000 lb. capacity STANDARD STAK-PALS now in use all over U.S.A. Fifteen basic rack sizes—post heights to 48"—All racks are four-way entry.



Samples will be furnished for inspection and testing at nominal cost. WRITE TODAY!



"Cutting Your Costs is our Business"

C. E. ROBINSON COMPANY
222 Colburn Avenue, Joliet, Illinois



Handling Coil Stock?

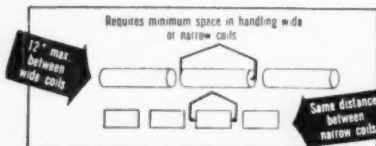
CHECK THESE

C-F LIFTER ADVANTAGES

- 1 Lifter handles wide range of coil sizes
- Requires minimum of only 10" to 12" between piles — saves storage room
- 1 man operation — eliminates hookers
- Positive grip on coil — no damage to material

• C-F Coil Lifters are saving time and labor in many plants and warehouses because they can pick up, carry and set down a coil of steel faster and safer than any other method. Infinite jaw

openings permit handling a very wide range of coil widths... carrying legs open fast, stay open until operator closes them on coil. Narrow legs require minimum space between piles — a space saving advantage. Made in motorized models for crane cab or pendant operation as well as manual types with chain wheel, in capacities from 3 tons up. Powered Rotating Heads available. Opening ranges to suit your requirements. Write for illustrated Bulletin.



CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

Circle 36 on Reader Service Card for more information

NEW EQUIPMENT SECTION

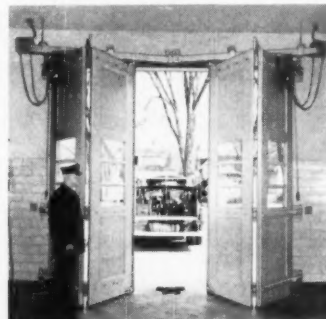
etc. The manufacturer claims heavy duty polyethylene bags are stronger, lighter, and protect better than other bags. They're available in open-mouth or valve type, can be filled with conventional equipment. Photo contrasts new seal (front) with conventional seal (rear).

Chippewa Plastics, Inc.

Circle 330 on Reader Service Card

Sliding Doors

This sliding-folding style of door is designed for heavy traffic, says the manufacturer. It folds to either right or left of the doorway. The



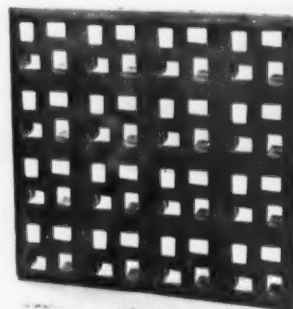
door is opened and closed gradually at first, then speeding up in the middle of the cycle, and slowing down to a gradual stop.

Richards-Wilcox Mfg. Co.

Circle 331 on Reader Service Card

Heavy Duty Flooring

The AIM Brand heavy duty floor plate will add substantially to the life of heavy-traffic industrial floors, says the manufacturer.



The material consists of an 11 3/4 inch square plate made from 12 gauge hot rolled steel. The plate has small rectangular holes which

WILL SHE LIVE TO GROW UP?



This child has leukemia—one of the most tragic forms of cancer. Only research has kept her alive.

Ten years ago, children stricken with leukemia—cancer of the blood-forming tissues—had only a few weeks or months of life. Today, many of these children have had precious months, even years, added to their lives, thanks to dramatic research discoveries.

Until science finds the means to save them, however, they live on borrowed time. The American Cancer Society's research program includes \$1,500,000 annually for research related to leukemia. Millions of dollars more are needed to conquer this grim disease—which kills 2,000 children each year, and is taking an increasing toll of adult lives.

Help research find the answers that will save these lives. Give generously to the American Cancer Society's intensive research assault against leukemia and all other forms of cancer.

AMERICAN CANCER SOCIETY



MAY, 1959

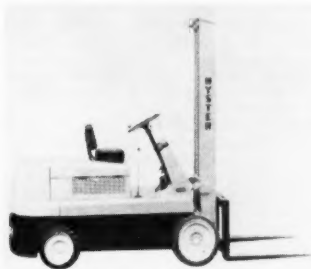
produce anchoring prongs that are embedded in the concrete. The holes also allow a partial concrete surface so that the finished floor is 76 percent steel and 24 percent concrete.

Acme Steel Co.

Circle 332 on Reader Service Card

High Capacity Truck Added

The SpaceSaver 100 has been added to a line of cushion tire lift trucks. It has a 10,000 pound capacity at 24-inch load center. It is claimed that unitized construc-



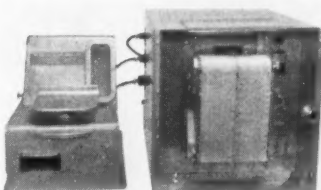
tion—welded integral chassis and frame—combines maximum strength and rigidity with easy access to major components. The Continental engine has 33 hp, 244 cu. in. displacement; it develops 192 lb. ft. of torque at 1200 rpm.

Hyster Co.

Circle 333 on Reader Service Card

Charts Package Weights

The Datamatic Jr. Weight Recorder graphs weight variations from norm to zero on a 6-inch strip chart. Recording is visual



from top or front. It is photographed with a Shadowgraph scale, but other checkweight scales or balances can be used. Strip chart plus or minus values are controlled by the sensitivity of the attached scale. The Jr. can be suspended under your packaging line or placed on a bench or table. Scale can be remotely located. Dimensions: 14 x 14 x 18 inches.

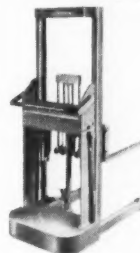
Scale Specialties & Systems, Inc.

Circle 334 on Reader Service Card

AMERICAN
Safeway

PORTABLE ELEVATING TRUCKS for any stacking job

From 46" to 130" lift



STANDARD
MODELS
priced from

\$190⁰⁰
to
\$855⁰⁰



Your crew can do twice the handling work for the same payroll cost

... and to take the heavy work and heavy costs out of HORIZONTAL HANDLING

AMERICAN
LOAD-JOCKEY



... the new drive attachment for portable elevating trucks

MATERIALS-HANDLING DIVISION
The American Pulley Company

4200 Wissahickon Ave., Philadelphia 29, Pa.

AMERICAN SAFEWAY TRUCKS—

by the makers of the famous American Pressed-Steel Hand Trucks



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Circle 38 on Reader Service Card for more information

MAIL THIS COUPON

Cyclone Fence, American Steel & Wire

Dept. MM-591, 614 Superior Avenue, N.W., Cleveland 13, Ohio

Please have your trained representative call on us to discuss our production problems.

Name _____ Company _____

Address _____

City _____ State _____



Let Cyclone carry your production load

Competitive market prices make production efficiency a more vital part of business success than ever before. Production waste, unnecessary manual handling, or time-consuming carting of products can add unnecessary expense to the price of your product. In many cases, a Cyclone Metal Processing Belt could help make your production line more efficient, thus making your product price more competitive.

We'd like the chance to send one of our trained salesmen into your plant to investigate your own production problems. Chances are he can show you, with facts and figures, exactly how a Cyclone Belt can be a blessing to your profit picture. His suggestions will be tailored to YOUR plant and YOUR product, not just a general sales pitch. There is absolutely no obligation.

USS and Cyclone are registered trademarks

Cyclone Fence Dept.
American Steel & Wire
Division of



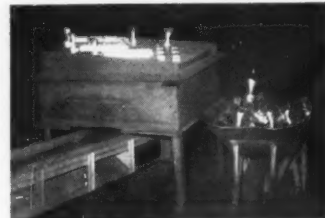
United States Steel

Manufactured at Waukegan, Ill. and Oakland, Calif. • Sales Offices, Coast to Coast

NEW EQUIPMENT SECTION

Tables Handle Castings

A line of foundry shakeout tables has been announced, with capacities of 250, 500, and 1200 pounds. These units have fully



enclosed vibrating mechanism and motor for easy maintenance. Manufacturer says these tables were specially produced for the smaller foundries which make small castings.

Somil Equipment and Supply Co.
Circle 335 on Reader Service Card

Adds to Engine Line

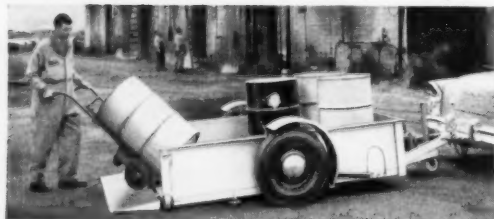
The Model K-241 engine develops 9.5 horsepower at 3600 rpm. This model completes a range

NEW DOWN TO EARTH IDEA

Trailevation! Sensational new cost-cutter for industry! Developed by Trailevator, the amazing elevating trailer that lowers to ground level...elevates load to hauling position...hauls the load.

Learn how Trailevator can save you loading time, hauling time, man-power and money! Picture Bulletin T-58 tells the story.

WRITE TODAY! Trailevator Division, Magline Inc., Pinconning, Mich.



Trailevator

TAKES THE LIFT OUT OF LOADING

Dealerships available in some territories.
Write for details

Circle 85 on Reader Service Card for more information
158

NEW
safety for
dock traffic
NEW
operating ease
NEW
RITE-HITE



manually operated MECHANICAL RAMP

New dynamic counterweight suspension of this Rite-Hite Model 72 eliminates the need for a ramp platform control lever. Where Model 72 is equipped with Rite-Hite's exclusive horizontal adjustment, the adjustment lever lies below dock surface when not in use. Thus, no levers protrude above the dock floor to impede traffic or endanger handling equipment and personnel.

Rite-Hite dynamic counterweighting also makes it possible to actuate the ramp platform with almost effortless ease. The platform practically "floats" to up or down positions.

A new positive, adjustable locking mechanism locks the ramp platform level with the dock surface when desired, permitting dock traffic up to the ramp's rated capacity to travel across it freely. Available for Model 72 ramps purchased without the Rite-Hite horizontal adjustment feature.

For full details on this new Model 72 — and any other of the complete line of manually operated and truck-actuated Rite-Hite Ramps, all of 10 ton capacity — write today, Dept. F-59

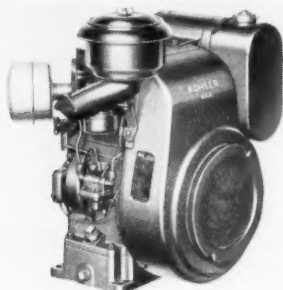


LOOMIS MACHINE COMPANY

133 EAST FOURTH STREET, CLARE, MICHIGAN
See us in Booth 505 at the MHI Show

Circle 84 on Reader Service Card for more information
MATERIAL HANDLING ENGINEERING

of engines to meet all application requirements from 3 hp to 24 hp. The cooling system directs a large volume of air, sufficient to maintain correct operating temperatures under all conditions. Ac-



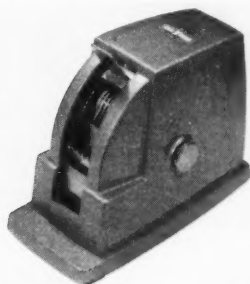
cording to the manufacturer, the K-241 is easy to start because of a spark advance mechanism which automatically retards spark during starting and advances it when speed is increased.

Kohler Co.

Circle 336 on Reader Service Card

Desk-Top Dispenser

With every stroke of the handle the Derby Grip-A-Tab Model 915 desk dispenser delivers a measured strip of pressure sensitive tape.



It's designed for small rolls of cellophane tape on one-inch cores. It takes rolls up to 1/2-inch wide and 1296 inches long. Strips longer than the pre-set length are easy to pull. Model 915 comes in several colors.

Derby Sealers, Inc.

Circle 337 on Reader Service Card

Felt-Tip Marker

Cado-marker is an all-aluminum felt-tip marking pen that writes in a wide range of colors on literally any surface. It's about the size of a large crayon. The ink dries quickly, without smudging, and will not dry out no matter how

Circle 112 on Reader Service Card for more information

A 2-TON ALL-PURPOSE TRUCK NOW!

PRIME-MOVER

PLATFORM TRUCK • MODEL F40



WITH TORQUE CONVERTER DRIVE

This husky PRIME-MOVER knows what you expect!

OVER the past several years, the engineers at PRIME-MOVER CO. have pondered deeply on the development of this platform truck. A standard was set at *nothing less than the peer* of high-grade, industrial-type machinery.

Now the F-40 is ready. Severely tested, it has *met* the standard, *and more*. This big rugged unit delivers the *heavy duty service* that industry expects in a material handling truck.

The F-40 is marketed by industrial truck distributors. Inquire there, or write for performance data, specifications.

ANOTHER GOOD PRODUCT BY PRIME-MOVER CO., MUSCATINE, IOWA

FLOOR TRUCKS

FOR MATERIALS HANDLING
STANDARD AND SPECIAL



WHEELS: Metal - Rubber - Pneumatic

See us at Booth 1808, MHI Show
Cleveland June 9-12

KEEP LOADS ALIVE



We take pride in our product and guarantee satisfactory performance and sturdy, long time operation under the most severe use. Agencies in most principal cities. Catalog gladly furnished upon request. Repeat orders testify to the efficiency of our trucks.

MAIN OFFICE AND FACTORY
ORANGEVILLE MFG. CO.

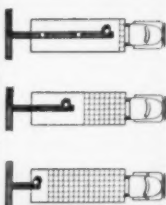
"Established 1879"
ORANGEVILLE 1, PENNA.



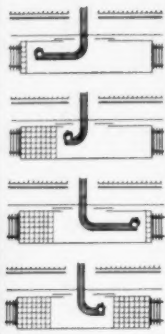
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HERE'S THE **PAY-OFF** FOR CONVEYOR SYSTEMS

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BOX CARS



TELESCOPIC ACTION

Wilkie Telescopic Conveyors "follow" the load to eliminate manual carrying at the ends of conveyor lines. Extending from 10 to 40 feet by simply pushing in or pulling out, they permit conveyor-carriage to the point of pick-up or deposit.

Service-proved for over ten years by many cost-conscious users, Wilkie Telescopic Conveyors quickly return their entire cost in time saved.

Plug the profit leaks! Write today for data on Wilkie gravity or power driven telescopic conveyors.



WILKIE **TELESCOPIC** **CONVEYORS** *cut handling costs!*

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Please send me complete information on the new Wilkie Telescopic Conveyor.

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COMPANY _____

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CITY _____ ZONE _____ STATE _____

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160

NEW EQUIPMENT SECTION

long the pen is stored. You can make broad or fine lines with it, depending on the angle you hold



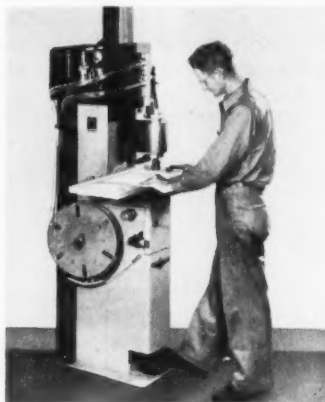
the tip. Colors are red, blue, green, purple, orange, yellow, brown, and black.

Cushman & Denison Mfg. Co.
Circle 338 on Reader Service Card

Drives Nails from Bottom

You can drive nails vertically from beneath the package with the Inverted-5 Model Auto-Nailer. Use it to eliminate nail holes in the face of your material, and speed up production by making it pos-

sible quick and accurate front positioning of the piece to be attached. Like conventional Auto-



Nailers, the Inverted-5 makes and drives its own nails, flush or below the surface, up to 180 a minute.
Auto-Nailer Co.

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For Floor Repairs

This epoxy-polyamide, Plastic Mastic, is used for a variety of industrial repair jobs, including floors. According to the manufacturer, this compound is effective

A modern truck for modern plants

The **HydroLectric**

with most modern features

- Two Drive Wheels instead of one
- Braking with handle in any position
- Four Wheel Stability instead of three
- Alloy Gear Transmission instead of chains
- 100% more Steering Ease—Greater Maneuverability
- 50% less Maintenance—Easy Accessibility
- Greater Tire Capacity—Equivalent Load Ratings



• Write for Bulletin K P

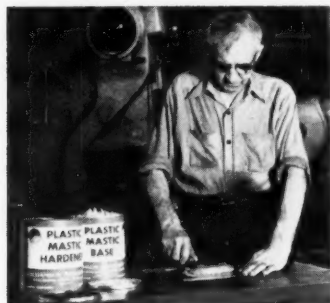
A TRUCK FOR EVERY PURPOSE AND MATERIAL



LIFT TRUCKS, INC.
CINCINNATI 14, OHIO

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MATERIAL HANDLING ENGINEERING

with concrete, as well as wood, metals, glass, and other materials.



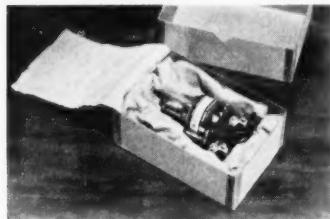
The base contains an epoxy resin; the hardener contains a polyamide.

Williamson Adhesives, Inc.

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Cushioning Has Many Uses

Cel-Fibe cellulose wadding is a versatile cushioning material with a neutral pH and low sulfur content. It can be die-cut, sawed,



sliced, seamed, scrolled, glued, stitched, or sealed to other materials. Ideal for low-cost, attractive cushioning protection. Also an excellent insulator. Meets military packaging specifications.

Cel-Fibe Div.,

Personal Products Corp.

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Unitizing With Tape

Filament tapes are strong enough to use for heavy-duty palletizing and bundling jobs. They're shock resistant and flexible, won't cut into the loads or into workers' hands. Rayon or glass fibres run the length of the tape, giving tensile strength up to $\frac{1}{4}$ ton per inch of width. No special equipment



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KRANE KAR

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HYDRAULIC Topping, HYDRAULIC
Telescoping, HYDRAULIC Load
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Steering. 5 sizes: 1½, 2½, 5,
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better—at savings!

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10, 12, 15,
30 tons capacity.
Fluid Drive,
Power Steering.
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SILENT HOIST
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for down-time!



FOR DIRECT OR ALTERNATING CURRENT

Hobbs d-c Hour Meter tells when lubrication and other service functions are due on any equipment powered by internal combustion engine or battery-powered equipment. Hobbs a-c Hour Meter has a wide range of applications on any equipment powered by line current.

Plan maintenance with
Hobbs HOUR METERS

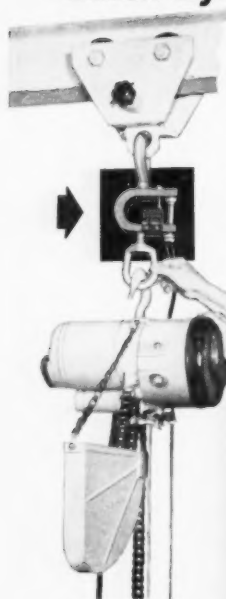
- Get information needed for on-time performance of planned maintenance — for superior performance and maximum utilization.
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- Obtain operating time in hours and minutes — at a glance!
- A true timing instrument — not a revolution counter.

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No need to worry about hoist or crane overloading with A Dillon Dyna-Switch on the job. Automatically cuts off power to motor when load exceeds safe limit. Operator must press reverse switch, returning load to floor. Surplus weight must be removed before pickup can be completed. Can also ring bells, operate warning lamps, etc.

- STOPS HOIST & CRANE OVERLOADING
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NEW EQUIPMENT SECTION



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Circle 342 on Reader Service Card

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Five Handling Steps**

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Gifford-Wood Co.
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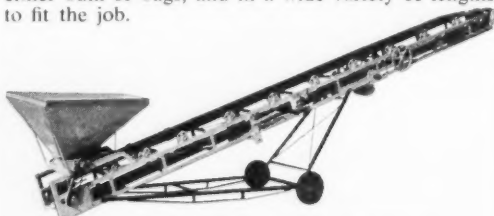
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**F SERIES CONVEYORS
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They do a first class job on fertilizer, grain, sand, rock, ore, and many other commodities.

THEY HAVE:

Ball bearings throughout. Choice of hoppers. Gas or electric drive.
With hopper agitator and screens for conditioning materials as they are handled
With dual drive giving two speed operation for either bulk or bags, and in a wide variety of lengths to fit the job.

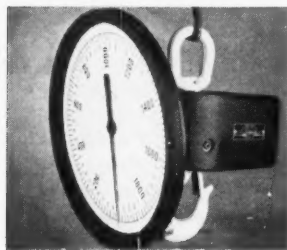


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HUMBOLDT, IOWA U.S.A.

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MATERIAL HANDLING ENGINEERING

Crane Scale Redesigned

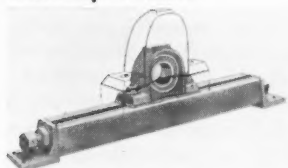


Technical and design improvements have been made in a Sensater hydraulic crane scale. This is the SU-5 series, available in 1000 to 4000 pound capacities. It has been redesigned to meet the need for low headroom loss (13 1/4") and light weight (60 pounds). For accuracy, the scale meets the Bureau of Standards tolerance specifications. It has a five times rated capacity safety factor, a full 360-degree dial, and a 25 percent tare adjustment. The SU-5 series scales utilize the same Sensater diaphragm used in the larger SU-20 series.

Martin-Decker Corp.

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Take-Up Frame



One basic take-up frame permits the use of any pillow block: ball, roller, or babbitted. According to the manufacturer, it is the only frame that can be top or side mounted. This is accomplished by loosening a locknut, which permits swinging the

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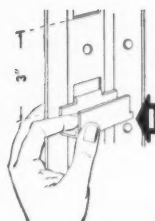


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MAY, 1959

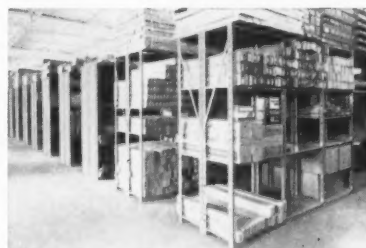
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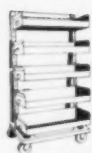
3022 NORTH BURDICK ST. **amp** KALAMAZOO, MICHIGAN

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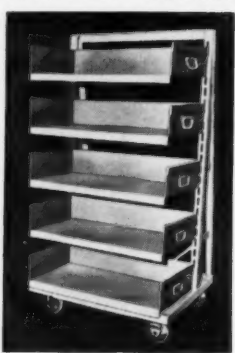
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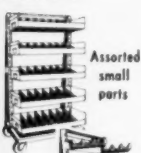
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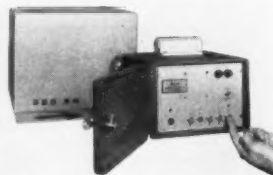
flange connection either way. A large nut is mounted on both ends of the adjusting screw, each ending with a heavy steel rod pin. This permits easy disassembly and removal of all parts without special tools. All parts can be individually replaced.

Lovejoy Flexible Coupling Co.

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Automatic Package Selection

The Model 410 carton selector permits automatic package selecting along a conveyor or other material flow line. By means of a 5-bar code, any one of 30 different items

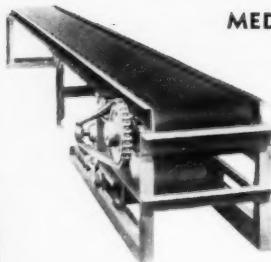


may be counted and sorted. The selector provides an output signal that can be used as needed: for example, to activate a conveyor switch. The selector switches may be set to recognize any carton markings as the cartons pass by at speeds up to 180 feet per second. The code may be printed on the cartons at the same time other printing is done; no special inks are needed.

Atronic Products, Inc.

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More Speed
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By
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MATERIAL HANDLING ENGINEERING

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The Model 44W back geared winch now features a handy ratchet control. This device consists of a conveniently located spring and pawl which can be quickly engaged with a ratchet wheel. Moving the handle of the spring to the top or bottom of a cam washer engages or disengages the ratchet pawl lever with the ratchet wheel. It is claimed that the device is simple and positive in its action and affords positive control of the winch. The Model 44W has a 2500 pound capacity; other capacities are available from 500 to 5000 pounds.

Thern Machine Co.

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Super-Strong Adhesive for Plastic Foams

Bondmaster G459 adhesive is used for bonding styrofoam, pelaspam or dylite beads, dyfoam, uni-crest, and other rigid plastic foams. It's so strong that the foam will tear before the bond if you try to tear it apart. It has a water base, therefore it's non-flammable when wet. Maintains its strength at -35°F to 350°F . It's approved for military packaging and complies with specification JAN-P-101.

Rubber & Asbestos Corp.

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Circle 96 on Reader Service Card for more information

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"Bridge" the cost gap with a NEW EUCLID TROLLEY on your PRESENT CRANE BRIDGE!

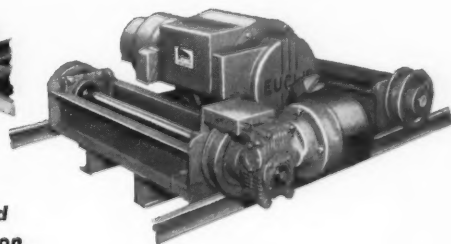
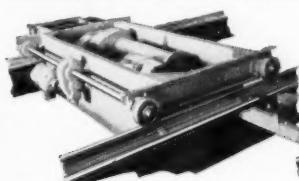
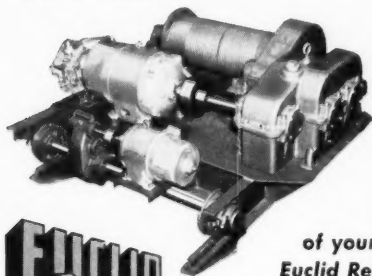
If your present overhead crane facilities require attention, it may be wise to investigate the possibilities of a crane remodeling job with new Euclid trolleys; available in a range of designs and capacities.

We can specifically cite instances where this plan has been employed to the complete satisfaction of the crane owners.

This Heavy Duty Series "M" trolley incorporates a three reduction spur gear hoist. Recommended for use on cranes subjected to continuous operation in the handling of heavier loads.

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OR POURING
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DAZZO Dock Shelters adjust themselves automatically to different dimensions of railroad cars or trucks. They expand in seconds by gravity, without use of springs. They retract out of the way when not in use.

Save money and grief . . . write for the facts about DAZZO Dock Shelters

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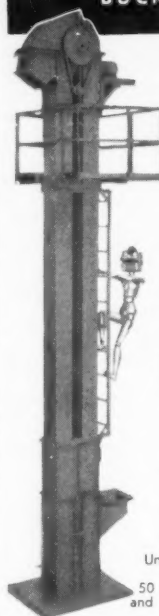
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of the Wise
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Universal Bucket Elevators are available for capacities of 50 to 3,000 bushels per hour, and may be obtained for any exact height.



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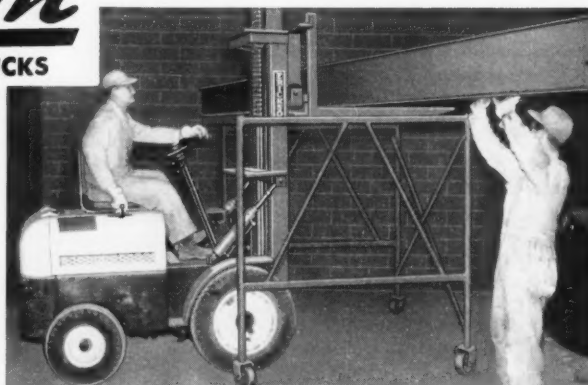
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Through 30 years of the toughest day-in day-out work (the concrete block industry), Erickson has truly proven itself to be "The Workhorse of Lift Trucks." Ruggedly built for long life and low operating cost. Perfect balance and big pneumatic tires give the Erickson wonderful traction. 4 speeds both forward and reverse.

The Erickson is "tailor-made" for your needs. Beds on platform trucks custom made. Many attachments available.

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MATERIAL HANDLING ENGINEERING

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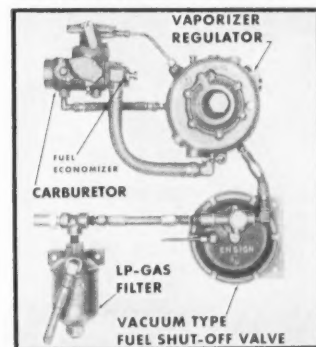
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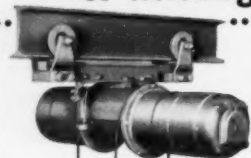
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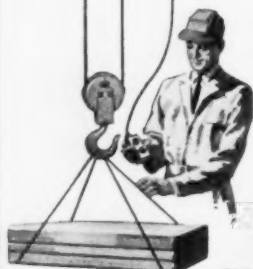


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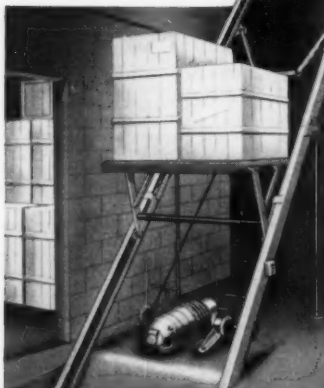
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